Official

HONDA SHOP MANUAL CB550SC/CB650SC Nighthauk



CB550SC: '83

IMPORTANT SAFETY NOTICE

WARNING Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION:

Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains some warnings and cautions against some specific service methods which could cause PERSONAL INJURY to service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda might be done or of the possible hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda must satisfy himself thoroughly that neither personal safety nor vehicle safety will be jeopardized by the service method or tools selected.



HOW TO USE THIS MANUAL

This shop manual describes the technical features and servicing procedures for the HONDA CB550SC and CB650SC.

NOTE: All information specified as 1984 is applicable to all 1984 and after model years.

Follow the Maintenance Schedule recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the U.S. Environmental Protection Agency. Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 through 3 apply to the whole motorcycle, while sections 4 through 21 describe parts of the motorcycle, grouped according to location.

Find the section you want on this page, then turn to the table of contents on page 1 of that section.

Most sections start with an assembly or system illustration, service information and trouble-shooting for the section. The subsequent pages give detailed procedures for the section.

If you are not familiar with this motorcycle, read the TECHNICAL FEATURES in section 22. If you don't know what the source of the trouble is, go to section 23, TROUBLE-SHOOTING.

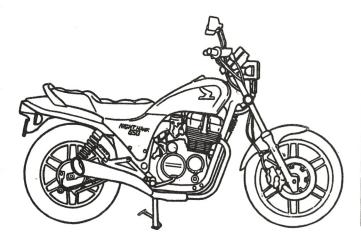
Refer to section 24 for 1983 CB550SC service information.

All information, illustrations, directions and specifications included in this publication are based on the latest product information available at the time of approval for printing. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation whatever. No part of this publication may be reproduced without written permission.

HONDA MOTOR CO., LTD. Service Publications Office

CONTENTS

	GENERAL INFORMATION	
	LUBRICATION	2
	MAINTENANCE	3
	FUEL SYSTEM	4
ENGINE	ENGINE REMOVAL/INSTALLATION	5
	CYLINDER HEAD/VALVES	6
	CYLINDER/PISTON	1
	CLUTCH	8
EN	GEAR SHIFT LINKAGE	9
	CRANKCASE	10
	TRANSMISSION	11
	CRANKSHAFT	12
	DRIVE TRAIN	13
SIS	FRONT WHEEL/SUSPENSION	14
CHASSIS	REAR WHEEL/SUSPENSION	15
	HYDRAULIC BRAKE	di di
	BATTERY/CHARGING SYSTEM	ar I
CAL	IGNITION SYSTEM	18
ELECTRICA	ELECTRIC STARTER	19
ELE	SWITCHES	20
	WIRING DIAGRAM	21
	TECHNICAL FEATURES	22
	TROUBLESHOOTING	23
	1983 CB550SC ADDENDUM	24

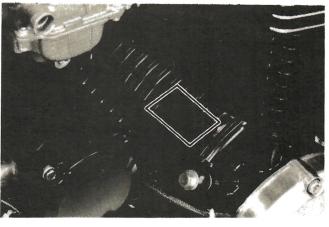




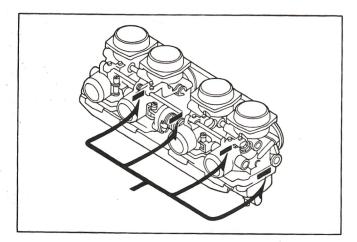
The frame serial number is stamped on the steering head right side.



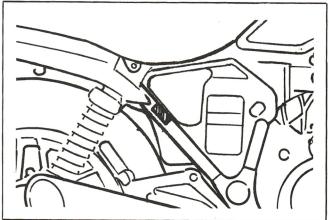
The vehicle identification number (VIN) is on the steering d left side,



The engine serial number is stamped on top of the right crankcase.



The carburetor identification number is on the carburetor body left side.



The color label is attached in the location shown. When ordering a color-coded part, always specify its designated color.



I. GENERAL INFORMATION

GENERAL SERVICE		1–1	CABLE & HARNESS ROUTING	1- 6 1- 8
SPECIFICA	TIONS	1–2	EMISSION CONTROL SYSTEM	1–10
TORQUE	VALUES	1-4		

GENERAL SAFETY

WARNING

If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas.

WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.

WARNING

The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. In case of contact, flush thoroughly with water and call a doctor if electrolyte gets in your eyes.

WARNING

The battery generates hydrogen gas which can be highly explosive. Do not smoke or allow flames or sparks near the battery, especially while charging it.

SERVICE RULES

- Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that do not meet HONDA's
 design specifications may damage the motorcycle.
- 2. Use the special tools designed for this product.
- 3. Use only metric tools when servicing this motorcycle. Metric bolts, nuts, and screws are not interchangeable with English fasteners. The use of incorrect tools and fasteners may damage the motorcycle.
- 4. Install new gaskets, O-rings, cotter pins, lock plates, etc. when reassembling.
- 5. When tightening bolts or nuts, begin with the larger-diameter or inner bolts first, and tighten to the specified torque diagonally, unless a particular sequence is specified.
- 6. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
- 7. After reassembly, check all parts for proper installation and operation.



SPECIFICATIONS

	ITEM			
DIMENSIONS	Overall length Overall width Overall height Wheelbase Seat height Ground clearance Dry weight '83:		805 mi 1,145 mi 1,460 mi 790 mi 150 mi 197 kg	m (84.3 in) m (31.7 in) m (45.1 in) m (57.5 in) m (31.1 in) m (5.9 in) g (434 lb) g (436 lb)
FRAME	Type Front suspen Rear suspens Front tire size Rear tire size	ion, travel ce	Double of Telescop Swingarr 100/90– 130/90–	m 110 mm (4.3 in) -19 57H
	Cold tire	Driver only	Front Rear	225 kPa (2.25 kg/cm ² , 32 psi) 225 kPa (2.25 kg/cm ² , 32 psi)
	pressures	Driver and passenger	Front Rear	225 kPa (2.25 kg/cm ² , 32 psi) 280 kPa (2.80 kg/cm ² , 40 psi)
	Front brake, lining swept area Rear brake, lining swept area Fuel capacity Fuel reserve capacity Caster angle Trail Front fork oil capacity		Disc brake, 904 cm ² (140 sq in) Drum brake, 201 cm ² (31 sq in) 13.0 liters (3.43 US gal, 2.86 Imp gal) 2.0 liters (0.53 US gal, 0.44 Imp gal) 61° 30′ 98 mm (3.9 in)	
			Right	447 - 452 cc (15.2 - 15.3 ozs)
			Left	462 - 467 cc (15.6 - 15.8 ozs)
ENGINE	Type Cylinder arrangement Bore and stroke Displacement Compression ratio Valve train Maximum horsepower Maximum torque Oil capacity Lubrication system Air filtration Cylinder compression Intake valve Opens Closes Exhaust valve Opens Closes		Air cooled 4-stroke, DOHC Vertical in line four 60.0 x 58.0 mm (2.36 x 2.28 in) 655 cm³ (39.9 cu in) 9.5 : 1 Chain driven DOHC, 4 valves per cylinder 53.7 kw/9,500 rpm 73 PS/9,500 rpm 57 N-m/8,000 rpm 5.7 kg-m/8,000 rpm 3.2 liters (3.4 US qt, 2.8 lmp qt) Wet sump Paper 1176.8 ± 98.1 kPa (12.0 ± 1.0 kg/cm², 170 ± 14 ps 5° (BTDC) at 1 mm lift, 58° (BTDC) at 0 lift 40° (ABDC) at 1 mm lift, 101° (ABDC) at 0 lift 35° (BBDC) at 1 mm lift, 87° (BBDC) at 0 lift 10° (ATDC) at 1 mm lift, 72° (ATDC) at 0 lift	

Date of Issue: Oct., 1983



		ITEM				
ENGINE		Valve clearance Engine weight Idle speed		IN: 0 mm HYDR EX: 0 mm HYDR 75 kg (165 lb) 1,100 ± 100 rpm	AULIC	
CARBURET	ION	Carburetor type Identification '83—'84: '84 CALIFOF Pilot screw Float level	number	VE type, 29 mm (1. VE54A VE54A VE75A Refer to 4 –10 18.5 mm (0.73 in)	14 in) venturi bore	
DRIVE TRA	DRIVE TRAIN Clutch Transmission Primary reduc Gear ratio I Gear ratio III Gear ratio IV Gear ratio V Gear ratio O.D. Final reductio Gear shift pati		O.	Wet, multi-plate 5 speed + O.D. (6 speed) 1.704 (92/54): 1 2.769 : 1 1.850 : 1 1.429 : 1 1.154 : 1 0.966 : 1 0.821 : 1 1.125 x 3.091 (18/16 x 34/11) : 1 Left foot operated return system, 1-N-2-3-4-5-0		
ELECTRICA	\L	Ignition timing "F" mark Full advance Starting system Generator Battery capacity		Transistorized 10° BTDC at 1,400 ± 200 rpm 32° BTDC at 3,000 ± 250 rpm Starting motor only Three phase alternator 280W/6,000 rpm (Air Cooled) 12V — 12 AH		
		Spark plug		NGK	ND	
			Standard	DPR8EA-9	X24EPR-U9	
	*		For extended high speed riding	DPR9EA-9	X27EPR-U9	
			For cold climate (Below 5°C)	DPR7EA-9	X22EPR-U9	
		Spark plug gar)	0.8 - 0.9 mm (0.031 - 0.035 in)		
LIGHTS	Headlight (high/low beam) Tail/stoplight Turn signal light (front/rear) Instrument Neutral indicator Turn signal indicator High beam indicator Oil pressure warning light Position light		12V - 60/55 W H4 BULB (Phillips 12342/99 or equivalent) 12V - 3/32 CP SAE NO. 1157 12V - 32 CP SAE NO. FRONT 1034 REAR 1073 12V - 2 CP 12V - 3 CP SAE NO. 1034			
FUSE				15A (Headlight, turn oil light, meter light) 30A (Main fuse)	signal/Brake light, neutral/	



TORQUE VALUES

• ENGINE

Item	1	Qʻty	Thread Dia (mm)	Torque N.m (kg-m, ft-lb)	Remarks
Camshaft holder		20	6	11–13 (1.1–1.3, 8–9)	
Cylinder head		12	8	20-24 (2.0-2.4, 14-17)	
Cam sprocket		4	7	18–22 (1.8–2.2, 13–16)	U.B.S., Apply a locking agent to the threads.
Spark plug		4		12-18 (1.2-1.8, 9-13)	agent to the threads.
Crank case	8 r	mm 11	8	21–25 (2.1–2.5, 15–18)	Apply motor ail to the
Oralin Gado	• .	mm 20	6	10-14 (1.0-1.4, 7-10)	Apply motor oil to the threads
Connecting rod nut	0.	8	8	30-34 (3.0-3.4, 22-25)	lineaus
Pulse rotor		1	10	31–39 (3.1–3.9, 22–28)	
Alternator rotor bolt		1 1	10	31–39 (3.1–3.9, 22–28)	
Mainshaft lock nut		1	22	47–53 (4.7–5.3, 34–38)	
Oil filter case		li	20	28–32 (2.8–3.2, 20–23)	
Oil pressure switch		l i	_	16-20 (1.6-2.0, 12-14)	Apply a liquid sealant
•		1		10 20 (1.0 2.0, 12 14)	to the threads.
Oil control bolt	6 mm	2	6	10-14 (1.0-1.4, 7-10)	lo the threads.
	8 mm	4	8	12–16 (1.2–1.6, 9–12)	
	10 mm	1 1	10	16–20 (1.6–2.0, 12–14)	
Oil drain plug		1 1	12	30-40 (3.0-4.0, 22-29)	
Alternator chain tensio	ner guide	4	6	10-14 (1.0-1.4, 7-10)	Apply a locking agent to
				, , , , , , , , , , , , , , , , , , , ,	the threads.
Pulse generator assemb	ly	4	5	5-7 (0.5-0.7, 4-5)	Apply a liquid sealant
		1		, , , , , , , , , , , , , , , , , , , ,	to the threads.
Cylinder nut		3	6	8-12 (0.8-1.2, 6-7)	
Oil pump		3	6	10-14 (1.0-1.4, 7-10)	
Alternator shaft locknu	ıt	1	16	38-42 (3.8-4.2, 27-30)	

CHASSIS

Item	Q'ty	Thread Dia (mm)	Torque N⋅m (kg-m, ft-lb)	Remarks
Steering stem nut Front fork top bridge Handle bar holder Front fork pinch bolt Front axle Front axle pinch bolt Engine mounting bolts 8 mm 10 mm Rear axle Final gear case Rear brake torque link Rear shock Foot peg Gearshift pedal pivot Rear axle pinch bolt Swingarm pivot — Right — Left Swingarm pivot lock nut Final drive case oil bolt	1 2 4 2 1 1 8 5 1 5 2 2 2 1 1 1 1 1 1 1 1 1 1	24 7 8 10 12 8 8 10 16 10 8 10 10 8 23 23 23	90-120 (9.0-12.0, 65-87) 9-13 (0.9-1.3, 6-9) 20-30 (2.0-3.0, 14-22) 45-55 (4.5-5.5, 33-40) 55-65 (5.5-6.5, 40-47) 15-25 (1.5-2.5, 11-18) 20-30 (2.0-3.0, 14-22) 45-60 (4.5-6.0, 33-43) 60-80 (6.0-8.0, 43-58) 60-70 (6.0-7.0, 43-51) 18-25 (1.8-2.5, 13-18) 30-40 (3.0-4.0, 22-29) 30-40 (3.0-4.0, 22-29) 18-25 (1.8-2.5, 13-18) 20-30 (2.0-3.0, 14-22) 8-12 (0.8-1.2, 6-9) 80-120 (8-12, 58-87) 80-120 (8-12, 58-87) 25-35 (2.5-3.5, 18-25)	U.B.S



	Item	Q'ty	Thread Dia (mm)	Torque N·m (kg-m, ft-lb)	Remarks
Brake bleeder		2	7	4-7 (0.4-0.7, 3-5)	
Brake and clut	ch master cylinder holder	4	6	10-14 (1.0-1.4, 7-10)	
Brake pedal		1	8	20-28 (2.0-2.8, 14-20)	
Gearshift peda		1	6	10-15 (1.0-1.5, 7-11)	
Side stand	Bolt	1	10	10-20 (1.0-2.0, 7-14)	
	Nut	1	10	35-45 (3.5-4.5, 25-33)	
Main stand		2	10	35-45 (3.5-4.5, 25-33)	
Muffler joint b	olt	1	8	24-30 (2.4-3.0, 17-22)	U.B.S
Muffler bracke	t	2	8	24-30 (2.4-3.0, 17-22)	
Headlight brac	ket	2	8	20-28 (2.0-2.8, 14-20)	
Front fork bra	ce	4	8	18-28 (1.8-2.8, 13-20)	
Brake and clut	ch master cylinder cap	4	4	2-3.5 (0.2-0.35, 1-3)	
Final gear oil		1	30	10-14 (1.0-1.4, 7-10)	
Front brake c	aliper Left (upper)	1	10	35-45 (3.5-4.5, 25-33)	
	Left (lower)	1	8	20-25 (2.0-2.5, 14-20)	
	Right	2	10	30-40 (3.0-4.0, 22-29)	

• Torque specifications listed above are for important fasteners. Others should be tightened to the standard torque values below.

STANDARD TORQUE VALUES

Туре		Torque N·m (kg-m, ft-lb)	Type	Torque N⋅m (kg-m, ft-lb)
5 mm bolt,	nut	4.5-6 (0.45-0.6, 3.5-4.5)	5 mm screw	3.5-5 (0.35-0.5, 2.5-3.6)
6 mm bolt,	nut	8-12 (0.8-1.2, 6-9)	6 mm screw	7-11 (0.7-1.1, 5-8)
8 mm bolt,	nut	18-25 (1.8-2.5, 13-18)	6 mm flange bolt, nut	10-14 (1.0-1.4, 7-10)
10 mm bolt,	nut	30-40 (3.0-4.0, 22-29)	8 mm flange bolt, nut	24-30 (2.4-3.0, 17-22)
12 mm bolt,	nut	50-60 (5.0-6.0, 36-43)	10 mm flange bolt, nut	30-40 (3.0-4.0, 22-29)



TOOLS

• NEWLY PROVIDED FOR CB650SC

DESCRIPTION	PART NUMBER	ALTERNATIVE	NUMBER	REF. SECT.
Oil pressure gauge attachment Valve guide driver/remover Hydraulic lifter bleeder Valve guide reamer Crankcase assembly pin Lock nut wrench, 33/44 mm Shaft holder Swingarm lock nut wrench	07505—MA70000 07942—MA60000 07973—ME90000 07984—MA60000 07973—ME50000 07916—ME50000 07924—ME50000 07908—ME90000			2 6 6 10 11 11 15

SPECIAL

DESCRIPTION	PART NUMBER	ALTERNATIVE	NUMBER	REF. SECT.
Oil pressure gauge	07506-3000000	Commercially available in U.S.A.		2
Vacuum gauge set	07404-0020000	Vacuum gauge set (U.S.A.	M937B-021-XXXXX	3
		only)		
Commpression gauge attachment	07510-MB00101	Equivalent commercially available in U.S.A.		3
Carburetor pilot screw wrench	07908-4220201			3, 4
Piston ring compressor (2-required)	07954-3740000			7
Piston base (2-required)	07958-3000000			7
Snap ring pliers	07914-3230001			8, 14,
				16
Driver	07947-3710200			10, 1
Driver	07949-3710000			10, 1
Lock nut wrench 30/64 mm	07916-MB00000			11, 13
Remover handle	07936-3710100			11, 15
Remover weight	07741-0010201	Remover weight	07936-3710200	11, 19
Bearing remover, 20 mm	07936-3710600			11
Attachment	07945-3330300			11, 13
Ring gear dis/assembly tool	07965-3710100			11
Shock absorber compressor	07964-MB00100			13
attachment (collar)				
Shock absorber compressor attachment (plate)	07964-MB00200	,		13
Rear shock compressor	07959-3290001			17
Pinon joint holder	07939-3290001 07926-ME90000			13
Pinion puller	07935-MB00000	Pinion puller	07931-4630200	13
Fillion paller	07333—WB00000	Pinion puller attachment kit	07931-MB00000	13
Attachment	07945-3330100			13
Steering stem socket	07916-3710100			14
Hex wrench, 6 mm	07917-3230000	Equivalent commercially		14
The street of th		available in U.S.A.		
Steering stem driver	07946-MB00000	TSteering stem driver	07946-3710601	14
		Shock absorber compressor	07964-MB00200	14
		attachment (collar)		
Race remover/installer	07946-3710400			14





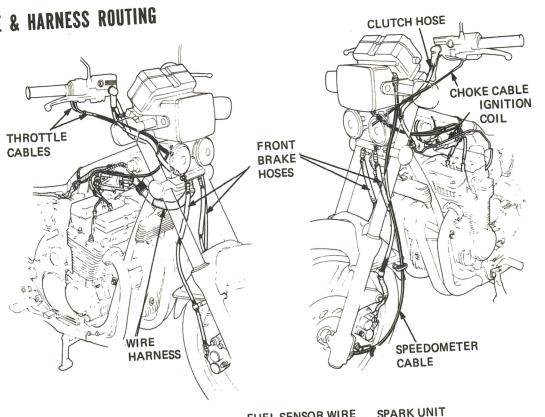
DI	SCRIPTION	PART NUMBER	ALTERNATIVE	NUMBER	REF. SECT.
Fork seal drive Swingarm bea Shock absorbe attachment (Rotor puller	ring remover er compressor	07947-4630100 07936-4150000 07959-MB10000 07933-2160000	Swingarm pivot remover	07936-3710500	14 15 15

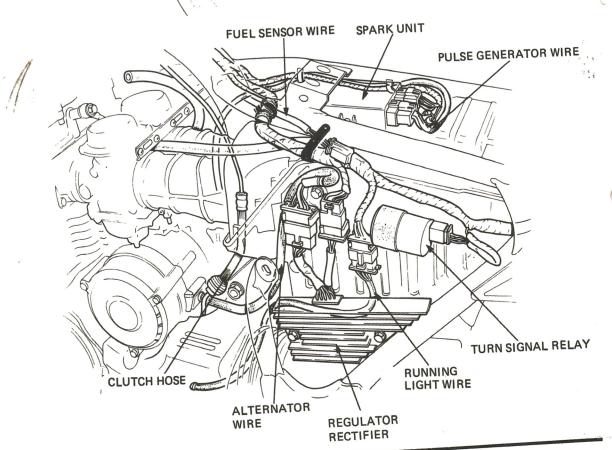
COMMON

D	ESCRIPTION	PART NUMBER	ALTERNATIVE	NUMBER	REF. SECT.
Extension bar Attachment,	ompressor nch, 17 x 27 mm	07401—0010000 07757—0010000 07716—0020300 07716—0020500 07746—0010300	Valve spring compressor Equivalent commercially available in U.S.A.	07957-3290001	4 6 8 8, 14 8, 11, 13, 14
Pilot, 30 mm Handle A, our Attachment,		07746-0040700 07749-0010000 07746-0010200	Driver	07949-6110000	8, 11 8,10,11 13,14,15 10, 11,
Handle B, inn Attachment, Pilot, 17 mm Attachment, Handle C, inn Attachment, Attachment, Pilot, 15 mm Pilot, 25 mm Shock absorb	20 mm I.D. 52 x 55 mm er 25 mm I.D.	07746-0020100 07746-0020400 07746-0040400 07746-0010400 07746-0030200 07746-0030300 07746-0040300 07746-0040600 07959-3290001	Driver	07945-3710200	13, 15 10 10, 15 11, 13 11, 13 11, 13 11 11, 14 11 13, 15
	nch, 30 x 32 mm ver expander ver, 15 mm ver, 17 mm	07716-0020400 07746-0050100 07746-0050400 07746-0050500 07746-0010100	Equivalent commercyally available in U.S.A. Equivalent commercially available in U.S.A.		14, 15 14, 15 14 15 15

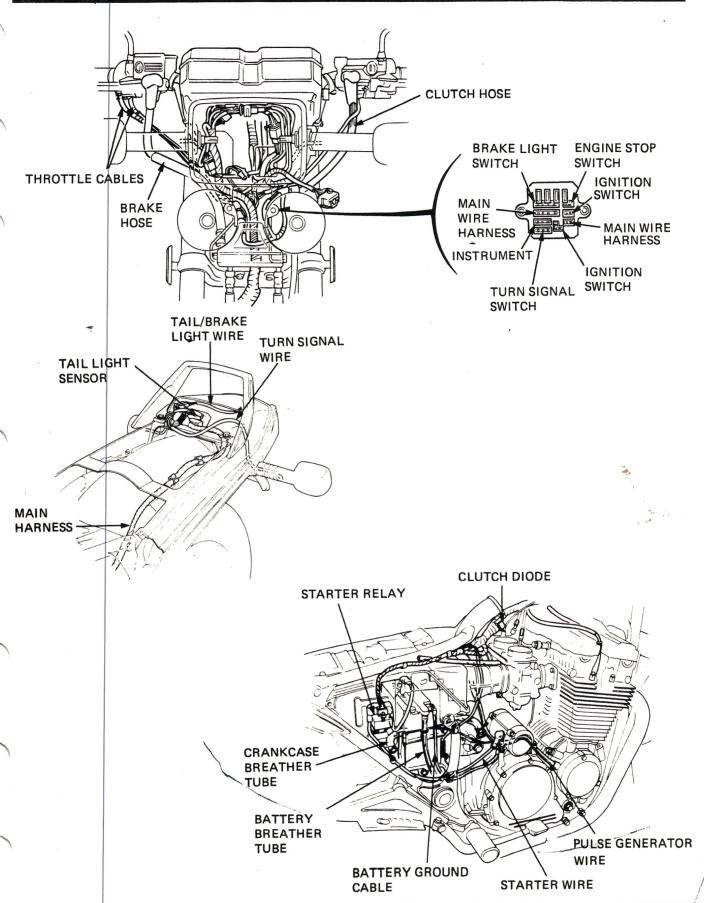


CABLE & HARNESS ROUTING











EMISSION CONTROL SYSTEM

The U.S. Environmental Protection Agency and California Air Resources Board (CARB) require manufacturers to certify that their motorcycles comply with applicable exhaust emission standards during their useful life, when operated and maintained according to the instructions provided, and that motorcycles built after January 1, 1983 comply with applicable noise emission standards for one year or 6,000 km (3,730 miles) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided. Compliance with the terms of the Distributor's Warranties for Honda Motorcycle Emission Control Systems is necessary in order to keep the emission warranty in effect.

SOURCE OF EMISSIONS

The combustion process produces carbon monoxide and hydrocarbons. Control of hydrocarbons is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

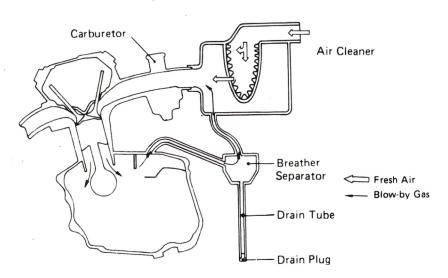
Honda Motor Co., Ltd. utilizes lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

EXHAUST EMISSION CONTROL SYSTEM

The exhaust emission control system is composed of lean carburetor settings, and no adjustments should be made except idle speed adjustment with the throttle stop screw.

CRANKCASE EMISSION CONT-ROL SYSTEM

The engine is equipped with a closed crankcase system which routes crankcase emissions through the air cleaner and into the combustion chamber. Condensed crankcase vapors are accumulated in a storage tank which must be emptied periodically. See the Maintenance Schedule in section 3.



NOISE EMISSION CONTROL SYSTEM

TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED: Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

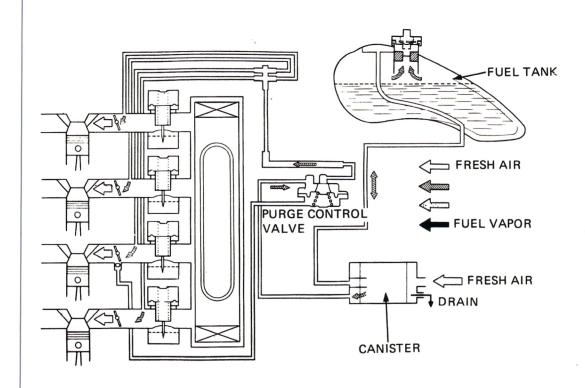
AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW:

- 1. Removal of, or puncturing the muffler, baffles, header pipes or any other component which conducts exhaust gases.
- 2. Removal of, or puncturing of any part of the intake system.
- 3. Lack of proper maintenance.
- 4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.



EVAPORATIVE EMISSION CONTROL SYSTEM (After '83: California model only)

This model complies with California Air Resources Board (CARB) requirements for evaporative emission regulations. Fuel vapor from the fuel tank is routed into a charcoal canister where it is absorbed and stored while the engine is stopped. When the motorcycle is running and the purge control diaphragm valve is open fuel vapor in the charcoal canister is drawn into the engine through the carburetor.

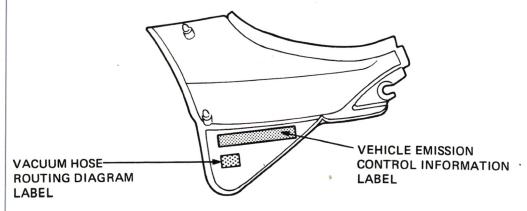


EMISSION CONTROL INFORMATION LABEL

An Emission Control information Label is located on the frame right side cover as shown. It contains basic tune-up specifications.

MODEL VACUUM HOSE ROUTING DIAGRAM LABEL (California model only)

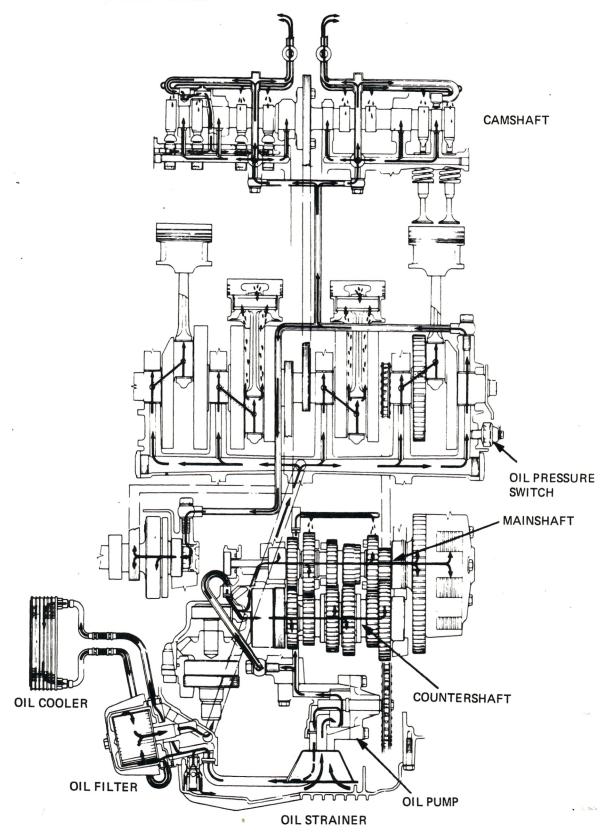
The vacuum hose routing diagram label is attached to the inside of the frame right side cover. Route the vacuum hoses as described on this label.



MSV 6944 8407



ENGINE LUBRICATION DIAGRAM





2. LUBRICATION

١				·	
	SERVICE	INFORMATION	2-1.	OIL PRESSURE CHECK	2- 5
	TROUBLE	SHOOTING	2–2	OIL PUMP	2- 6
	ENGINE	OIL LEVEL	2–3	FINAL DRIVE OIL	2- 9
	ENGINE	OIL & FILTER CHANGE	2-3	CONTROL CABLE LUBRICATION	2- 9
	OIL STRA	AINER CLEANING	2-4	LUBRICATION POINTS	2-10

SERVICE INFORMATION

GENERAL

SPECIFICATIONS

Engine oil

Oil capacity	2.5 liter (2.6 US qt, 2.2 Imp qt) after oil filter 2.2 liter (2.3 US qt, 1.9 Imp qt) after oil chan 3.2 liter (3.5 US qt, 2.8 Imp qt) after disassen	ge				
Oil recommendation	Use Honda 4-Stroke Oil or equivalent. API Service Classification: SE or SF. Viscosity: SAE 10W-40 Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.	SAE 10W-40 SAE 10W-40 SAE 10W-30 -20 0 20 40 60 80 100 °F -30 -20 -10 0 10 20 30 40 °C				
Oil pressure (at oil pressure switch)	490.3 kPa/7,000 rpm 80°C (176°F) (5.0 kg/cm²/7,000 rpm, 71 PSI/7,000 rpm)					
Oil pump delivery	36.0 liter (38.05 U.S. qt, 31.68 Imp qt)/min./7,000 rpm					

Oil pump service data

	STANDARD	SERVICE LIMIT
Rotor tip clearance	0.10 mm (0.004 in)	0.15 mm (0.006 in)
Pump body clearance	0.15-0.22 mm (0.006-0.009 in)	0.35 mm (0.014 in)
Pump end clearance	0.02-0.07 mm (0.001-0.003 in)	0.10 mm (0.004 in)

Final drive gear

	′83	170 cm ³ (5.78 oz)						
Oil capacity	ity ′84	150 cm ³ (4.9 oz)						
Recommended oi	'83	Hypoid gear oil: Above 5°C/41°F, SAE #90 Below 5°C/41°F, SAE #80						
	′84	Hypoid gear oil: SAE #80						

LUBRICATION



TORQUE VALUES

Engine oil drain plug

Engine oil filter

Oil pressure switch

30-40 N·m (3.0-4.0 kg·m, 22-29 ft-lb)

28-32 N·m (2.8-3.2 kg·m, 20-23 ft-lb) - Apply Locate® to crankcase bolt threads.

16-20 N·m (1.6-2.0 kg·m, 12-14 ft-lb) - Apply 3-BOND® or its equivalent to the

bolt threads.

TOOLS

Special

Oil pressure gauge

Oil pressure gauge attachment

07506-3000000

07510-MA70000

or commercially available tester

TROUBLESHOOTING

Oil level too low

- 1. External oil leaks.
- 2. Worn piston rings.
- 3. Worn valve guides or seals.

Oil contamination

- 1. Oil or filter not changed often enough.
- 2. Head gasket faulty.
- 3. Worn piston rings.

Low oil pressure

- 1. Oil level low.
- 2. Pressure relief valve stuck open.
- 3. Plugged oil pick-up screen.
- 4. Oil pump worn.

High oil pressure

- 1. Pressure relief valve stuck open.
- 2. Plugged oil filer, gallery, or metering orifice.
- 3. Incorrect oil being used.

No oil pressure

- 1. Oil level low.
- 2. Oil pump drive chain broken.
- 3. Oil pump faulty.
- 4. Internal oil leakage.



ENGINE OIL LEVEL

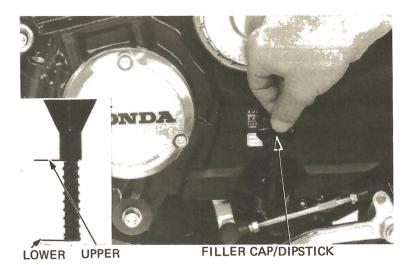
CAUTION

Run the engine and allow to idle for a few minutes. Stop the engine and support the motorcycle on the center stand.

Check the oil level with the filler cap dipstick after a few minutes. Do not screw in the cap when making this check.

If the level is below the lower level mark on the dipstick, fill to the upper level mark.

Check the oil pressure warning light. This light should go off when the engine starts. If it does not, check the oil pump function and/or oil circuit.



ENGINE OIL & FILTER CHANGE

Warm the engine to normal operating temperature.

Stop the engine.

Place the motorcycle on its center stand.

Remove the oil filler cap, drain plug and oil filter bolt and drain the oil.

Make sure that the sealing washer and the O-rings are in good condition.

After completely draining, replace the oil filter and install the oil filter bolt and drain bolt.

CAUTION

Do not operate the starter motor after draining.

Fill the crankcase with 2.5 lit (2.6 US qt, 2.2 Imp qt) of the recommended oil.

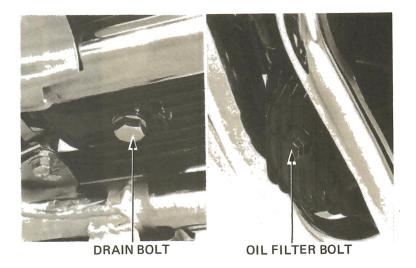
Reinstall the oil filler cap.

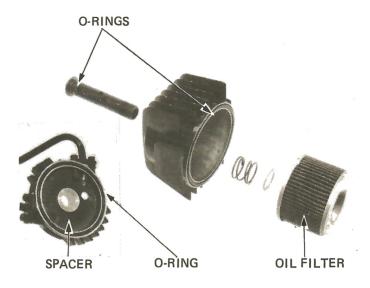
Start the engine and let it idle for 2-3 minutes.

Stop the engine and check that the oil level is at the upper level mark on the dipstick.

Add the recommended oil to the upper level if necessary.

Make sure that there are no oil leaks.







OIL STRAINER CLEANING

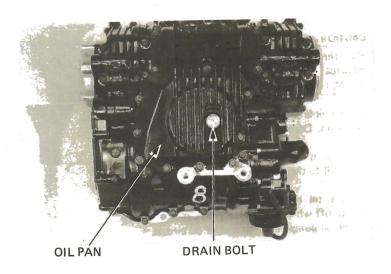
NOTE:

The oil strainer can be removed with the engine mounted in the frame.

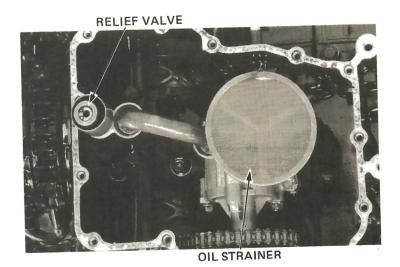
Remove the exhaust pipes, (page 5-3).

Remove the oil filler cap, drain plug and oil filter bolt.

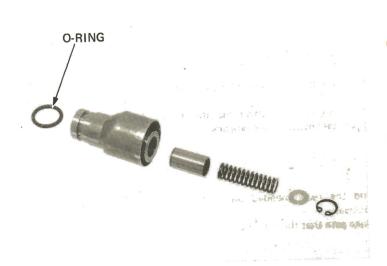
Remove the oil pan bolts and oil pan.



Remove and clean the oil strainer.



Check the operation of the pressure relief valve. Make sure the O-ring is in good condition whenever the relief valve is removed.

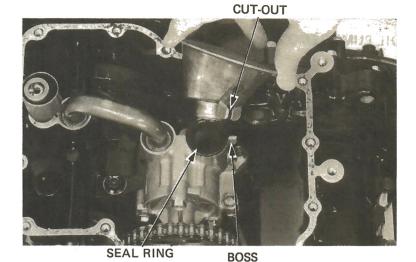




Install the relief valve, oil strainer and oil pan. Align the cut-out of the oil strainer with the boss of the oil pump body.

Install the exhaust pipes.

Fill the crankcase with recommended oil (Page 2-3).



OIL PRESSURE CHECK

Warm the engine up to normal operating temperature (approximately 80° C, 176° F) and stop the engine.

Remove the pulse generator cover.

Remove the oil pressure switch.

Connect an oil pressure gauge to the pressure switch

Check the oil level. Start the engine and check the oil pressure at 7,000 rpm.

STANDARD:

490.3 kpa/7,000 rpm 80°C (176°F) (5.0 kg/cm²/7,000 rpm, 71 psi/ 7,000 rpm)

If the oil pressure is not within specification, refer to troubleshooting on page 2-2.

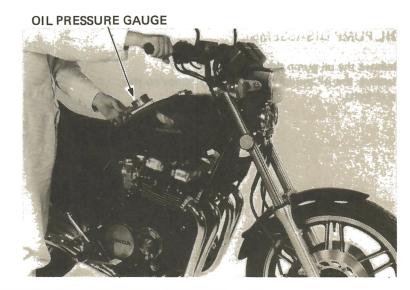
Apply a liquid sealant to the pressure switch threads and install.

Check that the oil pressure warning light goes out. If the oil pressure warning light stays on, stop the engine immediately and determine the cause.

Refer to page 20-2 for warning switch inspection.



OIL PRESSURE SWITCH





OIL PUMP

OIL PUMP REMOVAL

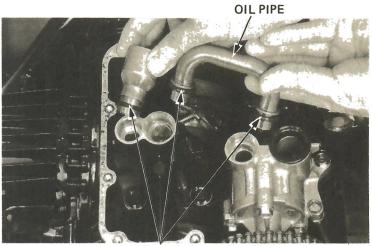
NOTE:

The oil pump can be removed with the engine in the frame.

Remove the exhaust pipes (page 5-3).

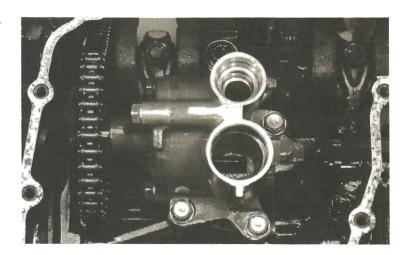
Remove the oil pan (page 2-4).

Pull out the oil strainer, relief valve and oil pipe.



O-RINGS

Remove the oil pump by removing the three mounting bolts.



OIL PUMP DISASSEMBLY

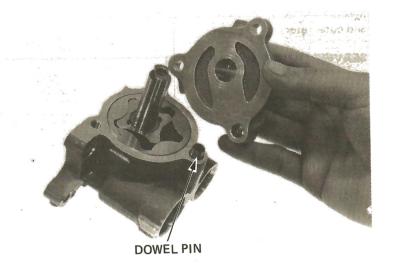
Remove the oil pump driven sprocket. Remove the oil pump body cover by removing the three bolts.



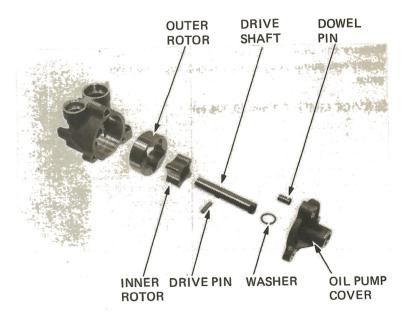
OIL PUMP DRIVEN SPROCKET



Remove the dowel pin from the oil pump body.



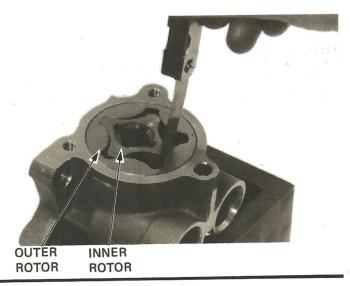
Remove the inner and outer rotors.
Pull out the drive pin and remove the drive shaft from the oil pump body.



OIL PUMP INSPECTION

Measure the clearance between the inner rotor and outer rotor, by using the filler gauge.

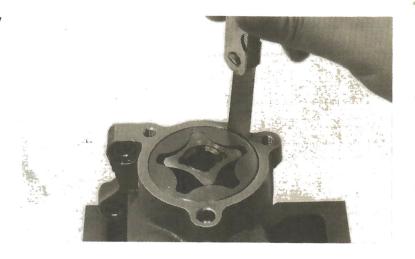
SERVICE LIMIT: 0.15 mm (0.006 in)





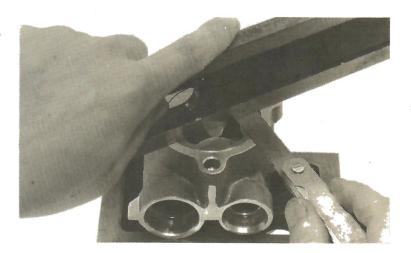
Measure the clearance between the oil pump body and outer rotor.

SERVICE LIMIT: 0.35 mm (0.014 in)



Measure the clearance between the inner and outer rotors and pump body using straight edge and filler gauge.

SERVICE LIMIT: 0.1 mm (0.004 in)

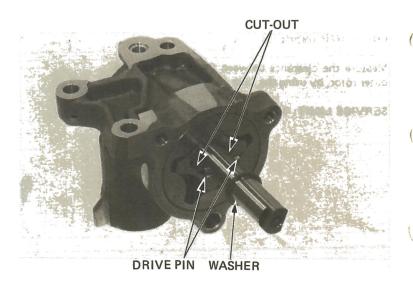


OIL PUMP ASSEMBLY

Place the outer and inner rotors into the body. Insert the drive pin into the drive shaft. Align the slots in the inner rotor with the drive pin. Insert the drive shaft and install the washer. Install the dowel pin and body cover.

NOTE

After assembling, make sure that the oil pump operates smoothly by rotating the drive shaft.



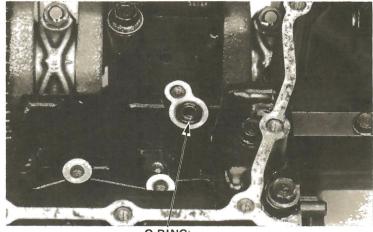


OIL PUMP INSTALLATION

Install a new O-ring on the lower crankcase and install the oil pump driven sprocket onto the oil pump. Place the oil pump drive chain over the driven sprocket and install the oil pump.

Install the oil pipe with new O-rings, oil strainer and relief valve.

Install the oil pan and exhaust pipes.



O-RING

FINAL DRIVE OIL

CHECK

Place the motorcycle on its center stand.

Remove the final drive gear case oil filler cap.

Check that the final gear case is filled up to the lower edge of the oil filler cap hole.

If the level is low, pour the recommended oil through the oil filler hole until it reaches the lower edge (see below).

CHANGE

Remove the oil filler cap.

Remove the drain bolt to drain all oil from the final gear case.

Install the drain bolt securely and fill the gear case with the recommended oil up to the lower edge of the filler cap hole.

OIL CAPACITY:

'83 : 170 cm³ (5.78 oz) '84 : 150 cm³ (4.9 oz)

RECOMMENDED OIL:

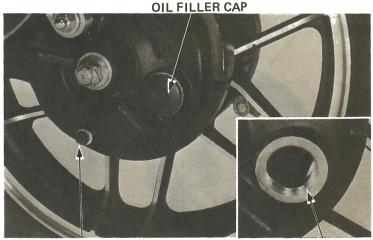
HYPOID GEAR OIL API, GL-5

'83 : SAE #90 (Above 5°C/41°F) SAE #80 (Below 5°C/41°F)

'84 : SAE #80

CONTROL CABLE LUBRICATION

Periodically, disconnect the throttle cables at their upper ends. Thoroughly lubricate the cables and their pivot points with a commercially available cable lubricant or a light weight oil.

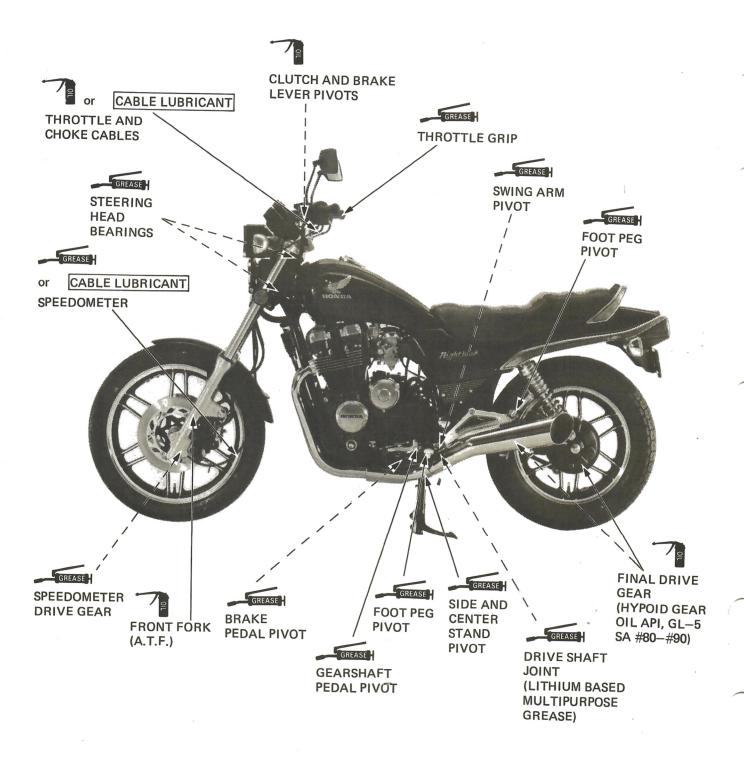


OIL DRAIN PLUG

OIL LEVEL



LUBRICATION POINTS





3. MAINTENANCE

	-		
SERVICE INFORMATION	3- 1	IGNITION TIMING	3–12
MAINTENANCE SCHEDULE	3- 3	COMPRESSION TEST	3–12
< ENGINE >		< CHASSIS >	
FUEL LINES	3- 5	BATTERY	3–13
FUEL STRAINER	3- 5	BRAKE FLUID	3-13
FUEL LINE DIAPHRAGM	3- 6	BRAKE SHOE/PAD WEAR	3–14
THROTTLE OPERATION	3- 6	BRAKE SYSTEM	3–14
CARBURETOR CHOKE	3- 7	BRAKE LIGHT SWITCH	3–15
AIR CLEANER	3- 8	HEADLIGHT AIM	3–16
CRANKCASE BREATHER	3- 9	CLUTCH	3–16
SPARK PLUGS	3- 9	SIDE STAND	3–16
CARBURETOR SYNCHRONIZATION	3-10	SUSPENSION	3–17
IDLE SPEED ADJUSTMENT	3-11	NUTS, BOLTS, FASTENERS	3–18
EVAPORATIVE EMISSION	3–11	WHEELS	3–19
CONTROL SYSTEM (California type only)	3-11	STEERING HEAD BEARINGS	3–19

SERVICE INFORMATION

GENERAL

Engine oilEngine oil filter

See page 2-3

• Final drive gear oil

See page 2-3

oil See page 2-9

SPECIFICATIONS

< Engine >

Spark plugs:

S	tandard	For cold climate	e (below 5°C, 41°F)	For extended	high speed riding
NGK	ND	NGK	ND	NGK	ND
DPR8EA-9	X24EPR-U9	DPR7EA-9	X22EPR-U9	DPR9EA-9	X27EPR-U9

Spark plug gap: 0.8-0.9 mm (0.031-0.035 in)



MAINTENANCE



Ignition timing

At idle:

10°BTDC

Full advance:

32°BTDC at 3.000 ± 250 rpm

Idle speed:

Carburetor synchronization:

1,100 ± 100 rpm

Cylinder compression: Throttle grip free play: All carburetors within 50 mm (2.0 in) Hg of each other. 1176.8 \pm 98.1 kPa (12.0 \pm 1.0 kg/cm², 170 \pm 14 psi)

2-6 mm (1/8-1/4 in)

< CHASSIS >

Rear brake pedal free play:

20-30 mm (3/4 - 1-1/4 in)

Tire:

		Front	Rear		
Tire size		100/90—19 57H	130/90—16 67H		
0.1111	Up to 90 kg (200 lbs) load	225 (2.25, 32)	225 (2.25, 32)		
Cold tire pressure kPa (kg/cm²)	90 kg (200 lbs) load to vehicle capacity load	225 (2.25, 32)	280 (2.80, 40)		
T	Bridgestone	L303	G508		
Tire brand	Dunlop	F11	K627		

Suspension air pressure: Front 0-40 kPa (0 - 0.4 kg/cm², 0 - 6 psi)

TOOLS

Special

Vacuum gauge set Carburetor pilot screw wrench Compression gauge attachment 07404-0020000 or M937B-021-XXXXX (U.S.A. only)

07908-4220201

07510-MB00101-equivalent commercially availabel in U.S.A.







'83: MAINTENANCE SCHEDULE

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.

I: INSPECT AND CLEAN, ADJUST, LUBRICATE, OR REPLACE IF NECESSARY.

C: CLEAN, R: REPLACE, A: ADJUST, L: LUBRICATE

			WHICHEVER			ODO					TE 3)
1		FREQUENCY	COMES		_	/22	/E-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		+	Refer to
			FIRST	,000 1000 1000		1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26/	\$ E/	20/20	\$ E/
				√ ′§§		0/3	8/8	%\%; %\%;			Refer to
		ITEM	EVERY	1.00					S) "3(1.56	page
	*	FUEL LINES			- 1	1	1	1	1	1	3-5
NS	*	FUEL STRAINER		С	С	С	С	С	С	С	3-5
日	*	THROTTLE OPERATION		_	- 1	1	1	١	ı	Т	3-6
١	*	CARBURETOR CHOKE			1	T	1	ı	ı	Т	3-7
EMISSION RELATED ITEMS		AIR CLEANER	NOTE 1		С	R	С	R	С	R	3-8
EL		CRANKCASE BREATHER	NOTE 2		С	С	С	С	С	С	3-9
l Z		SPARK PLUGS			R	R	R	R	R	R	3-9
S		ENGINE OIL	YEAR	R	R	R	R	R	R	R	2-3
N S		ENGINE OIL FILTER	YEAR	R	R	R	R	R	R	R	2-3
<u>E</u>	*	CARBURETOR SYNCHRONIZATION		1	. 1	T	1	1	ı	T	3-10
	*	CARBURETOR IDLE SPEED		I	1	Ι	1	ı	1	T	3-11
		FINAL DRIVE OIL				1		ı		R	2-9
		BATTERY	MONTH		1	Т	1	1	1	1	3-13
EMS		BRAKE FLUID (FRONT)	MONTH I 2 YEARS*R	1	1	1_	*R	.1.	-1.	*R	3-13
E		BRAKE SHOE/PAD WEAR			T	1	1	ı	Т	1	3-14
		BRAKE SYSTEM			T	1	ı	T	10	T	3-14
F	*	BRAKE LIGHT SWITCH		1	T	I	1		1		3-15
R	*	HEADLIGHT AIM		-1-	- 1	- 1					3-16
NON-EMISSION RELATED ITEMS		CLUTCH FLUID	MONTH I 2 YEARS*R	ı	ı	ı	*R	ı	1	*R	3-16
Σ		CLUTCH SYSTEM			Т	T	1	1	T	T	3-16
Š		SIDE STAND			T	1	-	1		T	3-16
8	*	SUSPENSION		1	Ī	ı		I	1	ı	3-17
	*	NUTS, BOLTS, FASTENERS			T	1		T	1	1	3-18
1	**	WHEELS			T	ı			ı	1	3-19
	**	STEERING HEAD BEARINGS		1		I		T		1	3-19

^{*} SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS PROPER TOOLS AND SERVICE DATA AND IS MECHANICALLY QUALIFIED.

NOTES: 1. SERVICE MORE FREQUENTLY WHEN RIDING IN DUSTY AREAS.

^{***} IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED ONLY BY AN AUTHORIZED HONDA DEALER.

^{2.} SERVICE MORE FREQUENTLY WHEN RIDING IN RAIN OR AT FULL THROTTLE.

^{3.} FOR HIGHER ODOMETER READINGS, REPEAT AT THE FREQUENCY INTERVAL ESTABLISHED HERE.



'84 : MAINTENANCE SCHEDULE

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.

I: INSPECT AND CLEAN, ADJUST, LUBRICATE, OR REPLACE IF NECESSARY.

C: CLEAN, R: REPLACE, A: ADJUST, L: LUBRICATE

			WHICHEVER	ODOMETER READING (NOTE 3)							
	FREQUENCY		FIRST EVERY						Refer to		
		ITEM	EVERY	7.69	6,4			V V.	S/ %	\$/~~	Refer to page
	*	FUEL LINES			-	- 1	- 1	1	-	-	3-5
	*	FUEL STRAINER		С	С	С	С	С	С	С	3-5
Sh As	*	THROTTLE OPERATION		1		1	1	1	- 1	- 1	3-6
TEN	*	CARBURETOR CHOKE			1	1	1	1	1	1	3-7
DI		AIR CLEANER	NOTE 1		С	R	С	R	С	R	3-8
TE.		CRANKCASE BREATHER	NOTE 2		С	С	С	С	С	С	3-9
EMISSION RELATED ITEMS		SPARK PLUGS			R	R	R	R	R	R	3-9
8		ENGINE OIL	YEAR	R	R	R	R	R	R	R	2-3
ő		ENGINE OIL FILTER	YEAR	R	R	R	R	R	R	R	2-3
1188	*	CARBURETOR SYNCHRONIZATION		I	1	1	1	1	ı	- 1	3-10
	*	CARBURETOR IDLE SPEED		1	1	1	1	-	1	1	3-11
	*	EVAPORATIVE EMISSION CONTROL SYSTEM	NOTE 3			ŀ		ı		ı	3-11
		FINAL DRIVE OIL						1		R	2-9
		BATTERY	MONTH	1		1		- 1	1		3-13
SWE		BRAKE FLUID (FRONT)	MONTH I 2 YEARS*R	1	ı	ı	*R	ı	ı	*R	3-13
Ē		BRAKE SHOE/PAD WEAR				1	1	1	4		3-14
<u>E</u>		BRAKE SYSTEM		1	T	1	1	1	1	1	3-14
\{	*	BRAKE LIGHT SWITCH		1	1	1	1			- 1	3-15
R	*	HEADLIGHT AIM		1	1	-1-	- 1	1		1	3-16
NON-EMISSION RELATED ITEMS		CLUTCH FLUID	MONTH I 2 YEARS*R	1.	1	- 1	*R	1	ı	*R	3-16
M		CLUTCH SYSTEM		1	- 1	1	1		1	1	3-16
N N		SIDE STAND					1			ı	3-16
N N	*	SUSPENSION		1	- 1	- 1	- 1			- 1	3-17
	*	NUTS, BOLTS, FASTENERS		1	T	1	1	T	T	1	3-18
	**	WHEELS			1	T	T	T	1	1	3-19
	**	STEERING HEAD BEARINGS				1		1		1	3-19

^{*} SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS PROPER TOOLS AND SERVICE DATA AND IS MECHANICALLY QUALIFIED.

NOTES: 1. SERVICE MORE FREQUENTLY WHEN RIDING IN DUSTY AREAS.

- 2. SERVICE MORE FREQUENTLY WHEN RIDING IN RAIN OR AT FULL THROTTLE.
- 3. CALIFORNIA TYPE ONLY.
- 4. FOR HIGHER ODOMETER READINGS, REPEAT AT THE FREQUENCY INTERVAL ESTABLISHED HERE.

^{**} IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED ONLY BY AN AUTHORIZED HONDA DEALER.



FUEL LINES

Replace any parts which show deterioration, damage or leakage.



FUEL LINES

FUEL STRAINER

Turn the fuel valve OFF.

Remove the fuel cup, O-ring and strainer, draining the gasoline into a suitable container.

WARNING

Gasoline is flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks near the equipment while draining fuel.

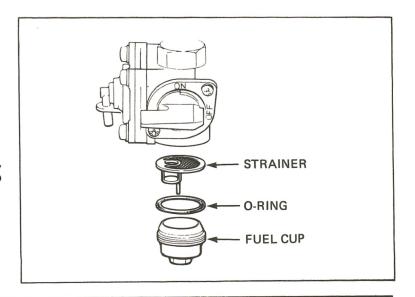
Wash the cup and strainer in clean nonflammable or high flash point solvent.

Reinstall the screen, aligning the index marks on the fuel valve body and strainer. Install a new O-ring into the fuel valve body. Reinstall the fuel cup, making sure the new O-ring is in place. Hand tighten the fuel cup and torque to specification.

TORQUE: 3-5 N·m (0.3-0.5 kg-m, 2-4 ft-lb)

After installing the strainer and refilling the tank, turn the fuel valve ON and check that there are no leaks.







FUEL LINE DIAPHRAGM

REMOVAL

Turn the fuel valve OFF.

Remove the seat.

Disconnect the fuel line, vacuum line and air vent

Remove the fuel tank.



VACUUM LINE FUEL VALVE

INSPECTION

Place a suitable drainage container under the fuel line.

Turn the fuel valve to ON. If fuel comes out of the fuel line, replace the fuel line diaphragm.

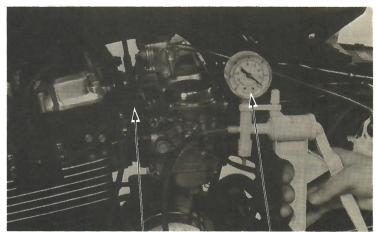
Connect a vacuum gauge to the diaphragm vacuum outlet. Fuel should flow from the fuel line when 12–20 mm Hg (0.48–0.8 in Hg) of vacuum is applied. If flow is restricted, replace the fuel line diaphragm.

INSTALLATION

Installation of the fuel line diaphragm is the reverse order of removal.

NOTE

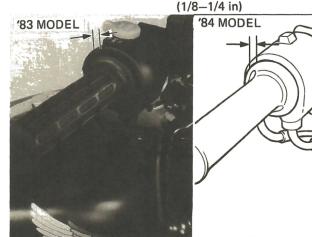
Be sure all fuel line, vacuum line and air vent tube connections are tight and not leaking.



2-6 mm

VACUUM LINE

VACUUM GAUGE A973X-041-XXXX or ST-AH-260-MC7



THROTTLE OPERATION

Check for smooth throttle grip full opening and automatic full closing in all steering positions.

Lubricate the cables, if throttle operation is not smooth.

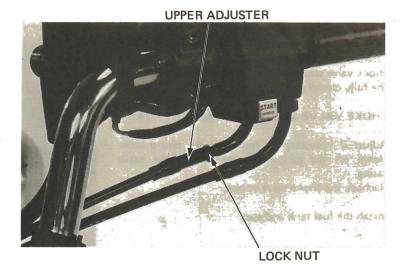
Make sure that the throttle cables are not deteriorated, damaged, or kinked.
Replace any damaged parts.

Make sure throttle grip free play is 2-6 mm (1/8-1/4 in) at the throttle grip flange.



Minor adjustments are performed at the upper adjuster. Adjust free play by loosening the lock nut and turning the adjuster. Tighten the lock nut.

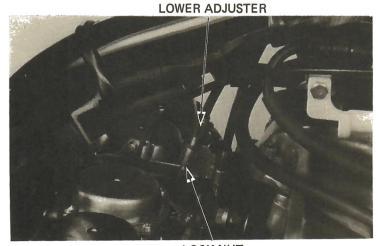
Recheck throttle operation. Replace any damaged parts.



Major adjustments are made at the lower adjuster on the carburetor.

To adjust, remove the fuel tank, loosen the grip play adjuster lock nut and turn the adjuster.

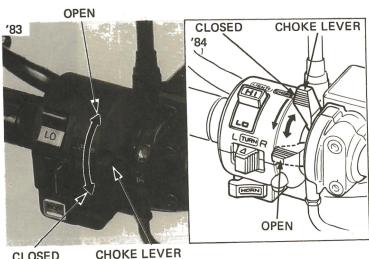
Tighten the lock nut.



LOCK NUT

CARBURETOR CHOKE

Check for smooth upper choke lever operation. Lubricate the choke cable, if the operation is not smooth.



CLOSED



Remove the seat and fuel tank.

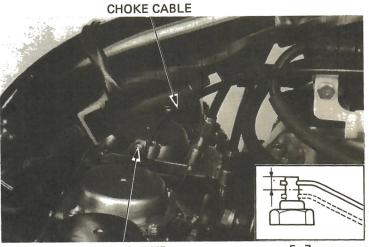
Push the choke lever on the handlebar all the way forward to fully open position and measure the choke valve stroke at the No. 3 carburetor between the fully closed and fully open positions.

CHOKE VALVE STROKE: 5-7 mm (3/16-1/4 in)

Adjust if necessary by loosening the choke cable clamp on the carburetor and moving the cable casing.

Recheck the choke valve stroke.

Install the fuel tank and seat.



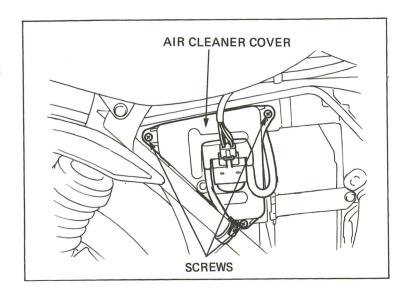
CABLE CLAMP

5-7 mm (3/16-1/4 in)

AIR CLEANER

Remove the frame right side cover.

Remove the three air cleaner cover screws and cover.



Pull the air cleaner element set spring out and remove the element.



SET SPRING



Clean the element by tapping it lightly to loosen dust. Blow away the remaining dust by applying compressed air from outside the element.

Replace the element if it is excessively dirty, broken or damaged.

Reinstall the element, element set spring, air cleaner cover and frame right side cover.



CRANKCASE BREATHER

Remove the plug from the drain tube to empty any deposits.

Install the drain plug.

NOTE

Service more frequently when riding in rain or at full throttle, or if the deposit level can be seen in the transparent section of the drain tube.

SPARK PLUGS

NGK	ND
DPR8EA-9	X24EPR-U9
DPR7EA-9	X22EPR-U9
DPR9EA-9	X27EPR-U9
	DPR8EA-9 DPR7EA-9

Clean any dirt from around the spark plug bases. Disconnect the spark plug caps.

Remove and discard the spark plugs.

Measure the new spark plug gaps using a wire-type feeler gauge.

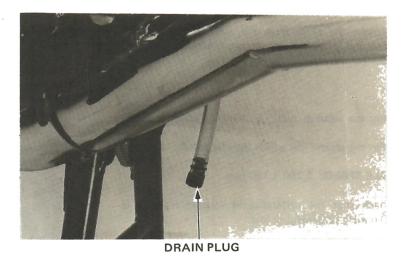
SPARK PLUG GAP: 0.8-0.9 mm (0.031-0.035 in)

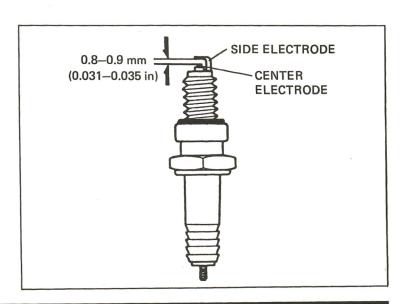
Adjust by bending the side electrode carefully.

With the plug washers attached, thread the spark plugs in by hand to prevent crossthreading.

Tighten the spark plugs another 1/2 turn with a spark plug wrench to compress the plug washers.

Connect the spark plug caps.







CARBURETOR SYNCHRONIZATION

NOTE

Synchronize the carburetors with the engine at normal operating temperature, transmission in neutral and motorcycle on the center stand.

Remove the both frame side covers, seat and fuel tank.

Turn the fuel valve OFF and remove the fuel and vacuum lines.

Remove the fuel tank.

Prepare a longer fuel line and reconnect it between the fuel tank and carburetor.

Position the fuel tank higher than normal.

Remove the plugs from the cylinder head intake ports and install the vacuum gauge adaptors. Connect the vacuum gauges.

Plug the vacuum tube end with a suitable stopper.

Start the engine and adjust the idle speed.

IDLE SPEED: 1,100 ± 100 rpm

Check that the difference in vacuum readings is 50 mmHg (2.0 inHg) or less.



ADAPTER



VACUUM GAUGE 07404-0020000 or M937B-021-XXXXX (U.S.A. ONLY)

ADJUSTMENT

NOTE

The No. 2 carburetor cannot be adjusted: it is the base.

Adjust within specifications by turning the adjusting screws.

Recheck the idle speed and synchronization.

Install the fuel tank, seat and side covers.



ADJUSTING SCREW



IDLE SPEED ADJUSTMENT

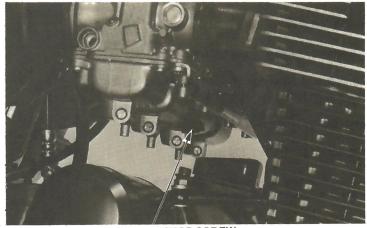
NOTE

- Inspect and adjust idle speed after all other engine adjustments are within specifications.
- The engine must be warm for accurate idle adjustment. Ten minutes of stopand-go driving is sufficient.

Warm up the engine, shift to NEUTRAL, and place the motorcycle on its center stand.

Turn the throttle stop screw as required to obtain the specified idle speed.

IDLE SPEED: 1,100 ± 100 rpm

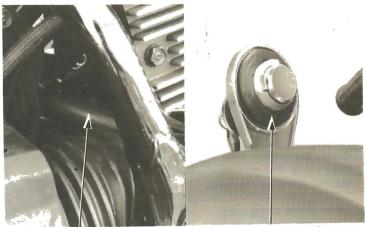


THROTTLE STOP SCREW

'84 : EVAPORATIVE EMISSION CONTROL SYSTEM (California model only)

Check the fuel tank breather tube between the tank cap and canister and the vacuum tube between the canister and purge control valve for deterioration, damage or loose joints or connections. Also check the tubes for clogging due to bending or twisting.

Check the fuel tank sealing rubber for deterioration.



BREATHER TUBE

SEALING RUBBER

Check the canister for cracks or damage. Check the protector for evidence of damage or other faults.



CANISTER



IGNITION TIMING

DYNAMIC

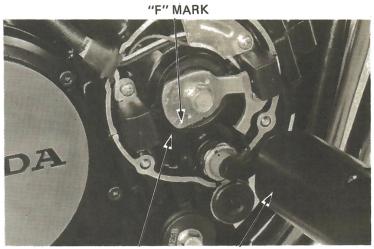
Remove the pulse generator cover.

Connect a stroboscopic timing light to the No. 1 or No. 4 cylinder's spark plug wire.

Start the engine and let it idle.

IDLE SPEED: 1,100 \pm 100 rpm

Aim the timing light at the timing mark. The "F" mark should align with the index mark.



INDEX MARK

TIMING LIGHT

COMPRESSION TEST

Warm up the engine. Stop the engine and remove all spark plugs.

Insert the compression gauge.

Open the throttle valves all the way and crank the engine with the starter motor.

NOTE

Crank the engine until the gauge reading stops rising. The maximum reading is usually reached within 4–7 seconds.

COMPRESSION PRESSURE:

1,176.8 ± 98.1 kPa (12 ± 1 kg/cm², 170 ± 14 psi)

If compression is low, check the following:

- Leaky valves
- Hydraulic valve adjusters
- Leaking cylinder head gasket
- Worn piston/ring/cylinder

High compression indicates that carbon deposits have accumulated on the combustion chamber or the piston crown.





BATTERY

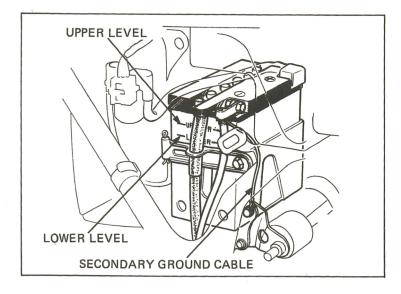
Remove the frame right side cover and inspect the battery fluid level. When the fluid level nears the lower level line, remove the battery as follows:

Remove the battery holder plate bolt and disconnect the secondary ground cable open the battery plate.

Disconnect the negative cable at the battery terminal, then remove the positive cable.

Pull the battery out, remove the filler caps and add distilled water to the upper level line.

Reinstall the filler caps and reinstall the battery.



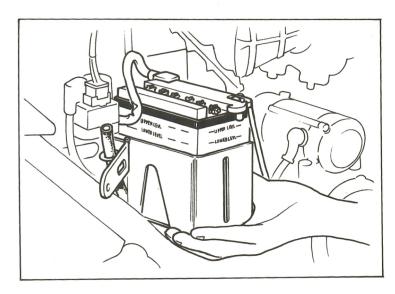
NOTE

Add only distilled water. Tap water will shorten the service life of the battery.

WARNING

The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. If electrolyte gets in your eyes; flush them throughly with water and get prompt medical attention.

Replace the battery, if sulfation forms or sedimants accumulate on the bottom.



BRAKE FLUID

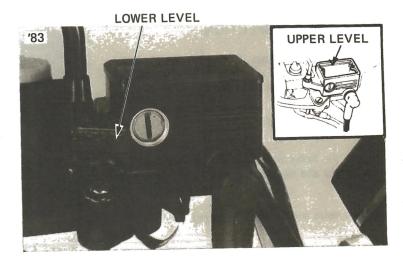
Check the front brake fluid reservoir level.

If the level nears the lower level mark, re-

If the level nears the lower level mark, remove the cover and diaphragm.

Fill the reservoir with DOT-3 or DOT-4 to the upper level mark on the inside of the reservoir.

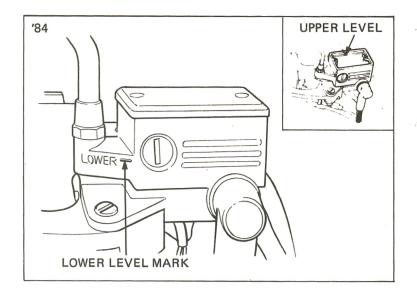
Check the entire system for leaks, if the level is low.





CAUTION

- Do not remove the cover until the handlebar has been turned so that the reservoir is level.
- Avoid operating the brake lever with the cap removed. Brake fluid will squirt out if the lever is pulled.
- Do not mix different types of fluid, they are not compatible with each other.



BRAKE SHOE/PAD WEAR

BRAKE PAD WEAR

Check the brake pads for wear by looking through the slot indicated by the arrow cast on the caliper assembly.

Replace the brake pads if the wear line on the pads reaches the edge of the brake disc (page 16-5).

CAUTION

Always replace the brake pads in pairs to assure even disc pressure.

Refer to section 16 for brake bleeding procedures.

BRAKE PADS

BRAKE DISC ARROW

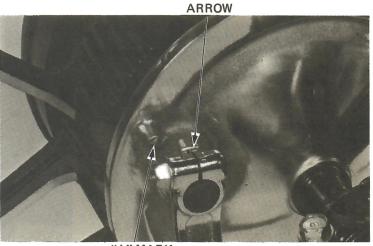
BRAKE SHOE INSPECTION

Replace the brake shoes if the arrow on the brake arm aligns with the reference mark " \triangle " on full application of the rear brake pedal.

BRAKE SYSTEM

Inspect the brake hoses and fittings for deterioration, cracks and signs of leakage. Tighten any loose fittings.

Replace hoses and fittings as required.



"△" MARK



BRAKE PEDAL HEIGHT

Adjust brake pedal height so the pedal is 7 mm (1/4 in) below the top of the foot peg.

CAUTION

Incorrect brake pedal height can cause brake drag.

To Adjust:

Loosen the stopper bolt lock nut and turn the stopper bolt.

Retighten the lock nut.

NOTE

After adjusting the brake pedal height, check the rear brake light switch and brake pedal free play and adjust if necessary.

BRAKE PEDAL FREE PLAY

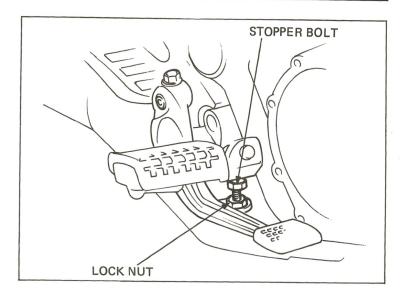
NOTE

Perform brake pedal free play adjustment after adjusting brake pedal height.

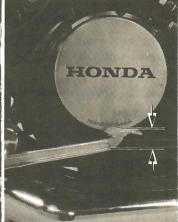
Check the brake pedal free play.

FREE PLAY: 20-30 mm (3/4-1-1/4 in)

If adjustment is necessary, turn the rear brake adjusting nut.







BRAKE ADJUSTING NUT

BRAKE LIGHT SWITCH

NOTE

Perform brake light switch adjustment after adjusting the brake pedal play and height.

Adjust the brake light switch so that the brake light will come on when the brake pedal is depressed 20 mm (3/4 in), and brake engagement begins.

Adjust by holding the switch body and turning the adjusting nut. Do not turn the switch body.

NOTE

The front brake light switch does not require adjustment.



ADJUSTING NUT



HEADLIGHT AIM

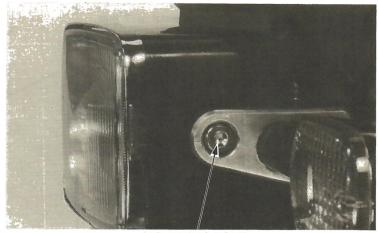
Adjust vertically by loosening both headlight case mounting bolts.

NOTE

Adjust the headlight beam as specified by local laws and regulations.

WARNING

An improperly adjusted headlight may blind oncoming drivers, or it may fail to light the road for a safe distance.



MOUNTING BOLT

CLUTCH

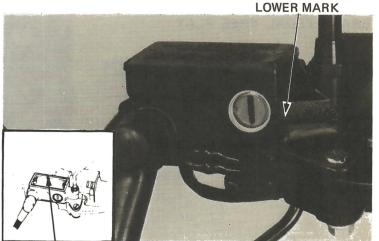
Check the clutch fluid reservoir level.

If the level nears the lower level mark, fill the reservoir with DOT-3 or DOT-4 to the upper level mark.

Check the entire system for leaks, if the level is low.

CAUTION

- Do not remove the cover until the handlebar has been turned so that the reservoir is level
- Avoid operating the clutch lever with the cap removed. Fluid will squirt out if the lever is pulled.
- Do not mix different types of fluid, as they are not compatible.

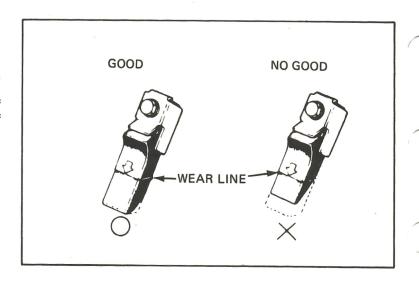


UPPER LEVEL MARK

SIDE STAND

Check the rubber pad for deterioration or wear. Replace if any wear extends to wear line as shown.

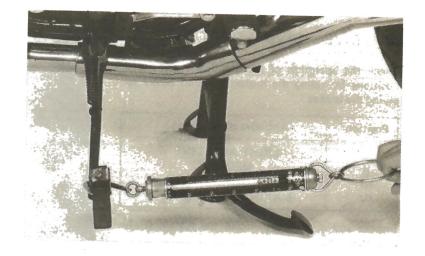
Check the side stand spring for damage and loss of tension, and the side stand assembly for freedom of movement. Make sure the side stand is not bent.





NOTE

- When replacing, use a rubber pad with the mark "Over 260 lbs ONLY".
- Spring tension is correct if the measurements fall within 2-3 kg (4.4-6.6 lb), when pulling the side stand lower end with a spring scale.



SUSPENSION

WARNING

Do not ride a vehicle with faulty suspension. Loose, worn or damaged suspension parts impair vehicle stability and control.

FRONT

Check the action of the front forks by compressing them several times.

Check the entire fork assembly for leaks or damage. Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.

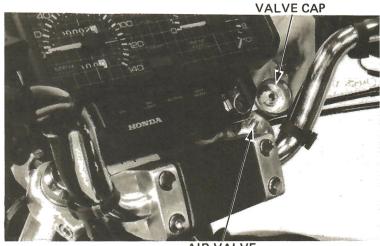


Check the front fork air pressure when the forks are cold.

Place the vehicle on its center stand.

Remove each air valve cap and measure the air pressure.

AIR PRESSURE: 0-40 kPa (0-0.4 kg/cm², 0-6 psi)



AIR VALVE

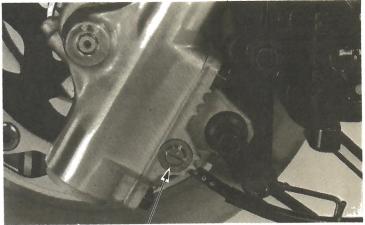


ANTI-DIVE SYSTEM INSPECTION

Check the operation of the anti-dive system in all positions by riding the motorcycle and firmly applying the brakes.

Position	Anti-dive damper force
l II	LIGHT ANTI-DIVE MEDIUM
III	HARD MAXIMUM ANTI-DIVE

Inspect and if necessary, repair the system (Refer to section 14).



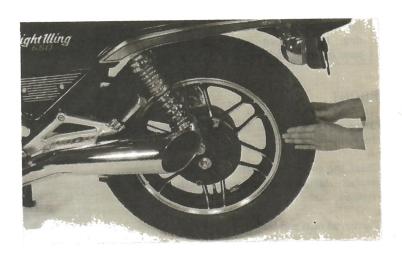
ADJUSTER

REAR

Place the motorcycle on its center stand.

Move the rear wheel sideways with force to see if the swingarm bearings are worn. Replace if excessively worn.

Check the shock absorber for leaks or damage. Tighten all rear suspension nuts and bolts.



NUTS, BOLTS, FASTENERS

Check that all chassis nuts and bolts are tightened to correct torque values (page 1-4).

Check that all cotter pins, safety clips, hose clamps and cable stays are in place.



WHEELS

TIRE PRESSURE

NOTE

Tire pressure should be checked when tires are COLD.

Check the tires for cuts, imbedded nails, or other sharp objects.

Recommended tire pressures and tire sizes:

		Front	Rear
Tire size		100/90-19 57H	130/90-16 67H
Cold tire pressure kPa (kg/cm², psi)	Up to 90 kg (200 lbs) load	225 (2.25, 32)	225 (2.25, 32)
	90 kg (200 lbs) load to vehicle capacity load	225 (2.25, 32)	280 (2.8, 40)
Tire brand	BRIDGE- STONE	L303	G508
	DUNLOP	F11	K627

Check the front and rear wheels for trueness (Refer to section 14, 15).

Measure the tread depth at the center of the tires. Replace the tires if the tread depth reaches the following limit:

Minimum tread depth:

Front: 1.5 mm (1/16 in) Rear: 2.0 mm (3/32 in)

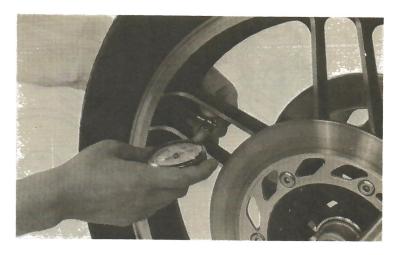
STEERING HEAD BEARINGS

NOTE

Check that the control cables do not interfere with handlebar rotation.

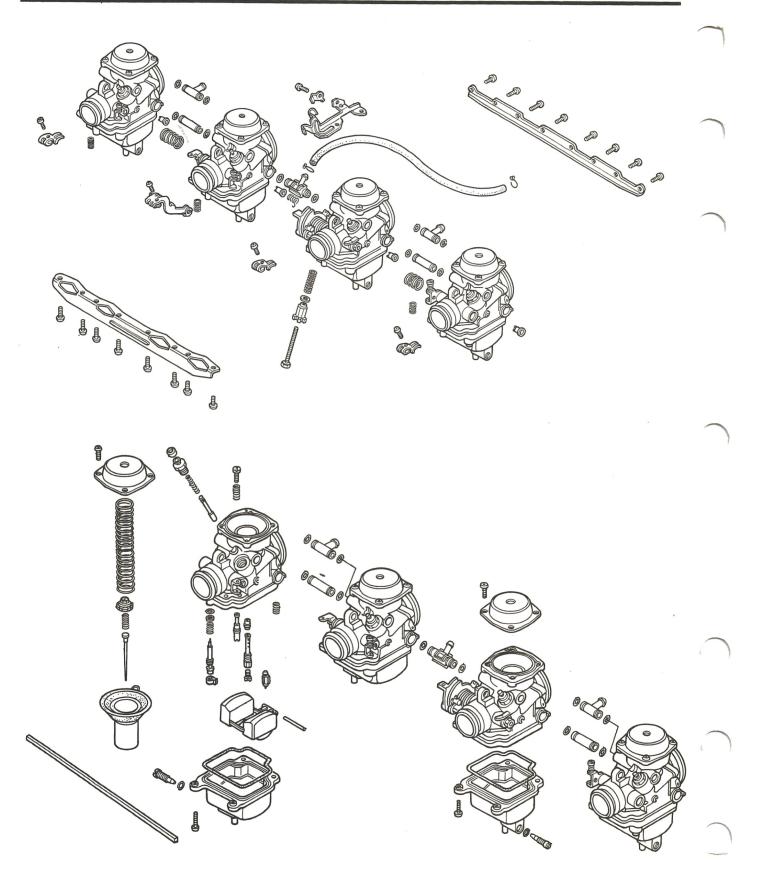
Raise the front wheel off the ground.

Check that the handlebar moves freely from side to side. If the handlebar moves unevenly, binds, or has vertical movement, adjust the steering head bearing by turning the steering head adjusting nut with a pin spanner.









4. FUEL SYSTEM

SERVICE INFORMATION	4-1	PILOT SCREW ADJUSTMENT	4-10
TROUBLESHOOTING	4-2	LIMITER CAP INSTALLATION	4-10
CARBURETOR REMOVAL	4-3	HIGH ALTITUDE ADJUSTMENT	4-11
VACUUM CYLINDER DISASSEMBLY	4-3	CARBURETOR INSTALLATION	4-12
FLOAT CHAMBER DISASSEMBLY	4-4	FUEL TANK	4-12
FLOAT LEVEL INSPECTION	4–5	AIR CLEANER CASE	4-12
CARBURETOR SEPARATION	4-6	PURGE CONTROL VALVE	
CARBURETOR ASSEMBLY	4-8	INSPECTION (California model) NEW	4—16

SERVICE INFORMATION

GENERAL

WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Do not smoke or allow flames or sparks in the work area.

- · When disassembling fuel system parts, note the locations of the O-rings. Replace them during assembly.
- · The float bowls have drain plugs that can be loosened to drain residual gasoline.

SPECIFICATIONS

ITEM		
Venturi dia.		29.2 mm (1.15 in)
Identification mark	′83–′84:	VE54A
	'84 CALIFORNIA:	VE75A
Float level		18.5 mm (0.73 in)
Main jet		#115
Idle speed		1,100 ± 100 rpm
Throttle grip free play		2-6 mm (0.08-0.24 in)
Fast idle		3,000 ± 500 rpm
Pilot screw opening		See page 4-10.

TOOLS

Special

Carburetor Pilot Screw Wrench

Pressure pump

Vacuum pump

07908-4220201

ST-AH-255-MC7 (U.S.A. only) ST-AH-260-MC7 (U.S.A. only)

Common

Float gauge

07401-0010000



TROUBLESHOOTING

Engine cranks but won't start

- 1. No fuel in tank
- 2. No fuel to carburetor
- 3. Engine flooded with fuel
- 4. No spark at plug (ignition malfunction)
- 5. Air cleaner clogged
- 6. Intake air leak
- 7. Improper choke operation
- 8. Improper throttle operation

Hard starting or stalling after starting

- 1. Improper choke operation
- 2. Ignition malfunction
- 3. Fast idle speed incorrect
- 4. Carburetor malfunction
- 5. Fuel contaminated
- 6. Intake air leak
- 7. Idle speed incorrect

Rough idle

- 1. Ignition malfunction
- 2. Idle speed incorrect
- 3. Incorrect carburetor synchronization
- 4. Carburetor malfunction
- 5. Fuel contaminated

Misfiring during acceleration

Ignition malfunction

Backfiring

- 1. Ignition malfunction
- 2. Carburetor malfunction

Poor performance (driveability) and poor fuel economy

- 1. Fuel system clogged
- 2. Ignition malfunction

Lean mixture

- 1. Clogged fuel jets
- 2. Piston stuck closed
- 3. Faulty float valve
- 4. Float level low
- 5. Fuel cap vent blocked
- 6. Fuel strainer screen clogged
- 7. Restricted fuel line
- 8. Air vent tube clogged
- 9. Intake air leak

Rich mixture

- 1. Clogged air jets
- 2. Faulty float valve
- 3. Float valve too high
- 4. Choke stuck closed
- 5. Dirth air cleaner



CARBURETOR REMOVAL

Turn the fuel valve "OFF" and disconnect the fuel line at the carburetor.

Remove both frame side covers, seat and fuel tank.

Loosen the air cleaner tube connecting bands. Move the air cleaner chamber to the rear. Loosen the carburetor intake pipe bands.

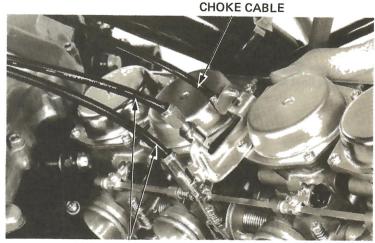


INTAKE PIPE BAND

CONNECTING TUBE BAND

Remove the carburetor assembly.

Disconnect the throttle and choke cables.



THROTTLE CABLE

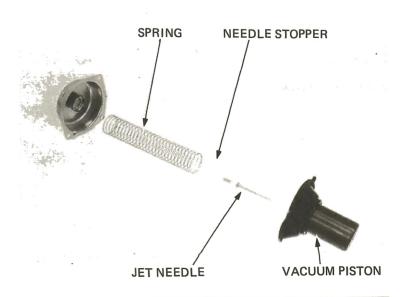
VACUUM CYLINDER DISASSEMBLY

Remove the vacuum cylinders from the carburetor bodies. Carefully lift the vacuum piston out with the needle and spring.

Inspect the vacuum piston and cylinder for wear, nicks, scratches or other damage. Make sure that the piston and jet needle move up and down freely in the cylinder.

Remove the needle stopper and separate the jet needle from the piston.

Inspect the needle and seat for deposits, bending, grooves, or other damage.

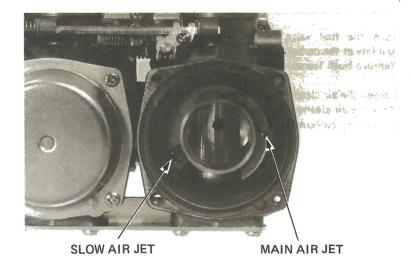




Blow open the air jets with compressed air.

NOTE

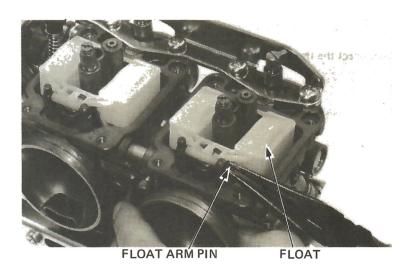
Never clean carburetor jets with wire or drills. This will enlarge the openings and result in excessive fuel consumption.



FLOAT CHAMBER DISASSEMBLY

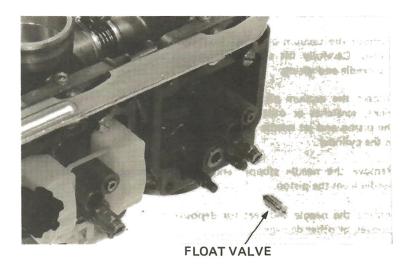
Remove the float chamber body.

Pull out the float arm pin with a pair of pliers, remove the float and float valve.



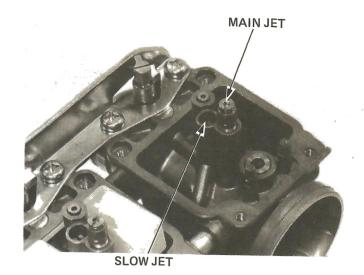
Inspect the float valve and seat for grooves, nicks or deposits.

Inspect the operation of the float valve.





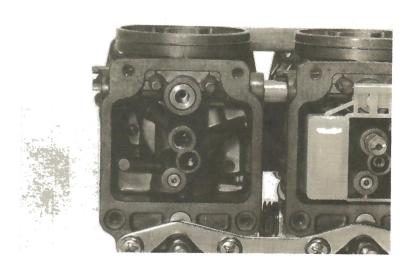
Remove the main and slow jets.



Blow through all jets and body passages with compressed air.

NOTE

 If the needle jet is difficult to remove, carefully press the needle jet from the cylinder side with a soft object.

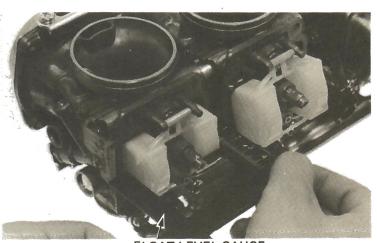


FLOAT LEVEL INSPECTION

Measure the float level with the carburetors inclined $15^{\circ}-45^{\circ}$ from vertical and the float tang just contacting the float valve.

FLOAT LEVEL: 18.5 ± 1mm (0.61 ± 0.04 in)

Replace the float assembly, if it is not within specifications.

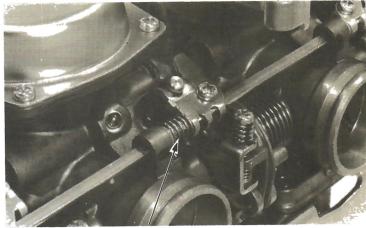


FLOAT LEVEL GAUGE 07401-0010000



CARBURETOR SEPARATION

Unhook the choke (by starter) relief spring.

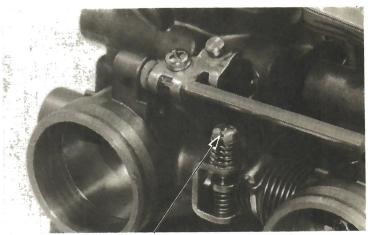


SPRING

Loosen each carburetor's synchronization adjusting screw until there is no spring tension on it.

NOTE

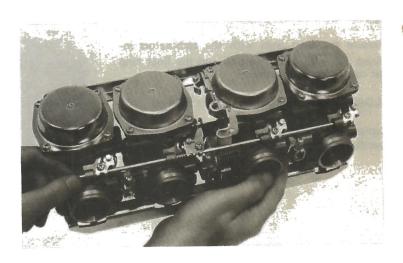
Turn the synchronization screws in until they seat and note the number of turns to ensure original positioning.



SYNCHRONIZATION ADJUSTING SCREW

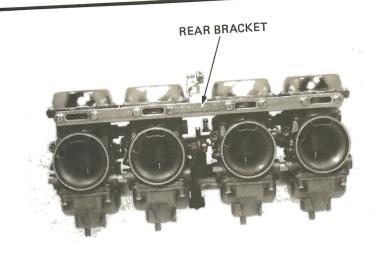
Loosen each choke (by-starter) arm locking screw.

Pull the choke shaft out from the right side and remove the choke arms.

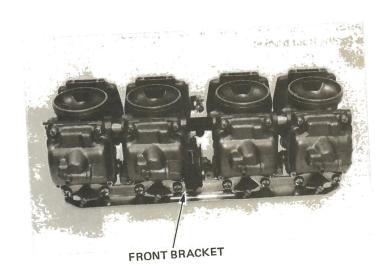




Remove the rear bracket.

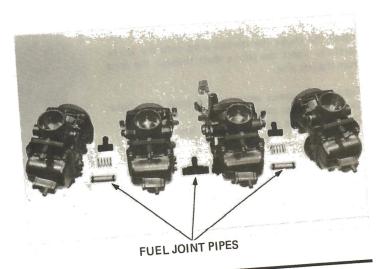


Remove the front bracket.



Carefully separate the carburetors.

Separate the carburetors horizontally to prevent damage to the fuel and air joint pipes and to the choke linkage.





CARBURETOR ASSEMBLY

Install new O-rings onto the fuel joint pipes.

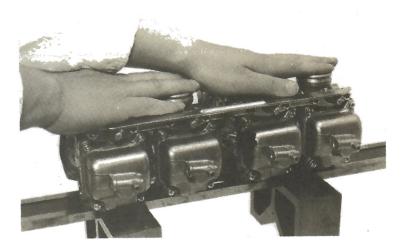
NOTE

Apply a thin coating of oil to the O-rings.

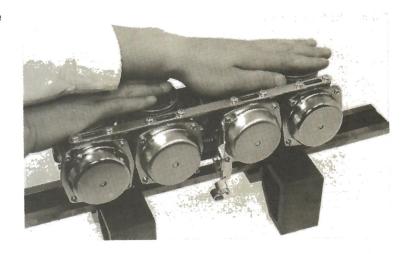
Install the front bracket loosely.

Place the carburetors on a flat surface with the float chambers up.

Press the carburetors together carefully and evenly tighten the screws in the sequence shown in two or more steps to prevent carburetor misalignment.



Install the rear bracket using the same procedure as for the front bracket.



Install the choke (by starter) arms onto the valves. Carefully insert the choke shaft through the arms from the left side.

Tighten the screws securely and hook the choke (by starter) relief spring.
Check the choke shaft for smooth operation.



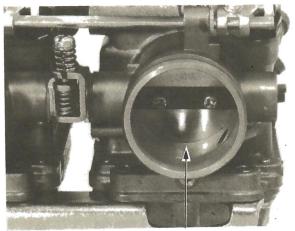


Turn each synchronization adjusting screw to its original position as noted during disassembly.



SYNCHRONIZATION ADJUSTING SCREW

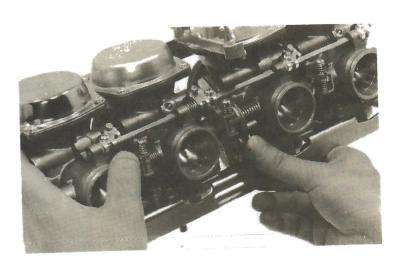
Make the distance between the by-pass hole in the carburetor body and throttle valve equal for each carburetor.



BY-PASS HOLE

Inspect the throttle operation as described below:

- Open the throttle slightly by pressing on the throttle linkage. Then relase the throttle.
- Make sure that it returns smoothly.
- Make sure that there is no drag when opening and closing the throttle.





PILOT SCREW ADJUSTMENT

IDLE DROP PROCEDURE (U.S.A. ONLY)

NOTE

- The pilot screws are factory pre-set and no adjustment is necessary unless the pilot screw is replaced.
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate a 50 rpm change.
- Turn each pilot screw clockwise until it seats lightly and back it out to the specification given. This is an initial setting prior to the final pilot screw adjustment.

INITIAL OPENING: 2-5/8 turns out

CAUTION

Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.

- 2. Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient.
- 3. Attach a tachometer.
- 4. Adjust the idle speed with the throttle stop screw. IDLE SPEED: 1,100 ± 100 rpm
- Turn each pilot screw 1/2 turn out from the initial setting.
- If the engine speed increases by 50 rpm or more, turn each pilot screw out by a continual 1/2 turn until it drops by 50 rpm or less.
- Adjust the idle speed with the throttle stop screw.
- 8. Turn the No. 1 carburetor pilot screw in until the engine speed drops 50 rpm.
- 9. Turn the No. 1 carburetor pilot screw 1 turn out from the position obtained in step 8.
- Adjust the idle speed with the throttle stop screw.
- 11. Perform steps 8, 9 and 10 for the No. 2, 3 and 4 carburetor pilot screws.

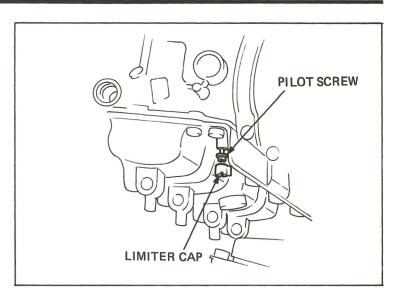
LIMITER CAP INSTALLATION

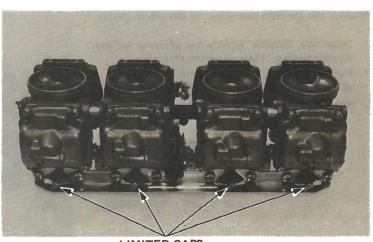
If the pilot screw is replaced, a new limiter cap must be installed after pilot screw adjustment is completed.

After adjustment, cement the limiter caps over the pilot screws, using LOCTITE ® 601 or equivalent. The limiter cap should be placed against its stop, preventing further adjustment that would enrich the fuel mixture (limiter cap position permits clockwise rotation and prevents counterclockwise rotation).

NOTE

Do not turn the pilot screw when installing the limiter cap,





LIMITER CAPS



HIGH ALTITUDE ADJUSTMENT

NOTE

These adjustments must be made at high altitude to ensure proper high altitude operation.

When the vehicle is to be operated continuously above 6,500 ft (2,000 m) the carburetor must be readjusted as described below to improve driveability and decrease exhaust emissions.

- 1. Warm up the engine to operating temperature. Stop and go driving for 10 minutes is sufficient.
- 2. Turn the pilot screw clockwise 1/2 turn.
- 3. Adjust the idle speed to 1,100 \pm 100 rpm with the throttle stop screw.
- Attach the Vehicle Emission Control Information Update label.

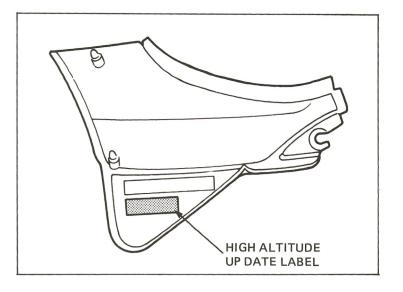
NOTE

Do not attach the label to any part that can be easily removed from the vehicle.

WARNING

Operation at an altitude lower than 5,000 ft (1,500 m) with the carburetor adjusted for high altitudes may cause the engine to idle roughly and stall.

When the vehicle is to be operated continuously below 5,000 ft (1,500 m), turn the pilot screw counterclockwise to its original position against its stop and adjust the idle speed to 1,100 \pm 100 rpm. Be sure to do these adjustments at low altitude.



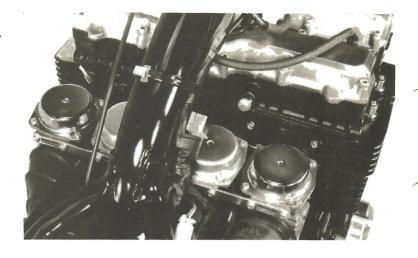


CARBURETOR INSTALLATION

The installation sequence is the reverse of removal.

After installation, inspect the following items.

- · Choke cable adjustment.
- · Throttle cables adjustment.
- · Carburetor synchronization adjustment.
- · Carburetor idle speed.



FUEL TANK

W WARNING

Do not allow flames or sparks near gasoline. Wipe up spilled gasoline at once.

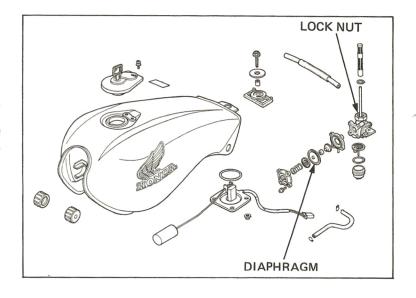
Check the vent hole of the filler cap for blockage.

Check that fuel is flowing out of the fuel valve using a vacuum pump. If fuel flow is restricted, clean the fuel strainer.

NOTE

Do not overtighten the fuel valve lock nut.

Make sure there are no fuel leaks.



AIR CLEANER CASE

REMOVAL

Remove both frame side covers, the seat and fuel tank.

Remove the two tail cover mounting bolts.

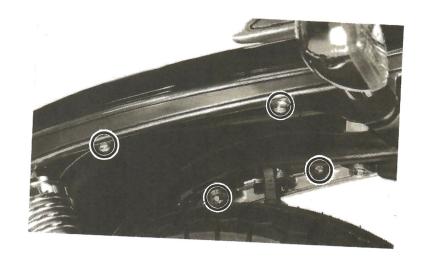
Disconnect the tail light and turn signal light connectors.



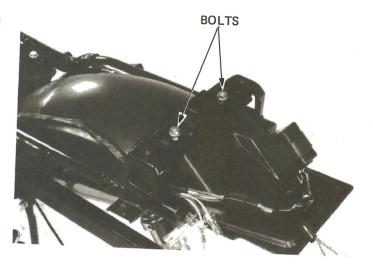
CONNECTORS



Remove the rear fender lower mounting bolts. Remove the rear wheel (page 15-3).

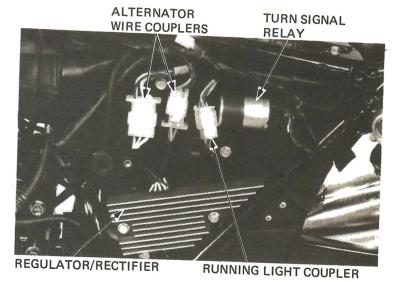


Remove the rear fender top mounting bolts and remove the rear fender.



Remove the regulator rectifier and turn signal relay.

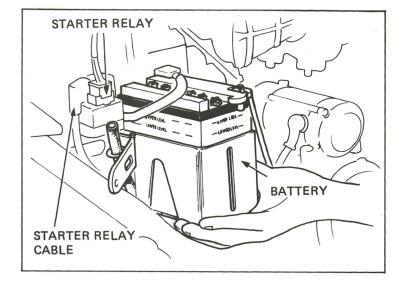
Disconnect the running light and alternator wire couplers.





Remove the battery; Disconnect the negative cable and second ground cable first, at the battery terminal and rear engine mounting bracket bolt. Then remove the positive cable.

Remove the starter relay cable.



Remove the battery holder mount bolt and disconnect the crankcase breather tube.

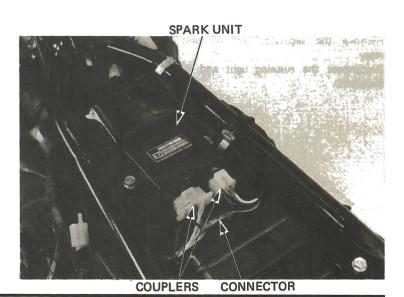


BATTERY HOLDER MOUNT BOLT

CRANKCASE BREATHER TUBE

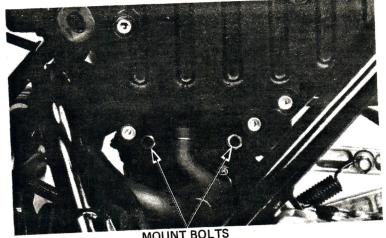
Remove the spark unit.

Disconnect the oil pressure switch wire connector and pulse generator wire couplers.



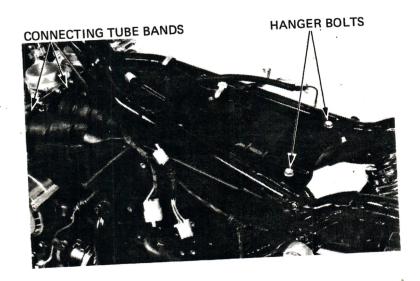


Remove the two air cleaner case mount bolts.



MOUNT BOLTS

Remove the two air cleaner case hanger bolts and loosen the air cleaner tube connecting bands.



Remove the air cleaner case from the rear.



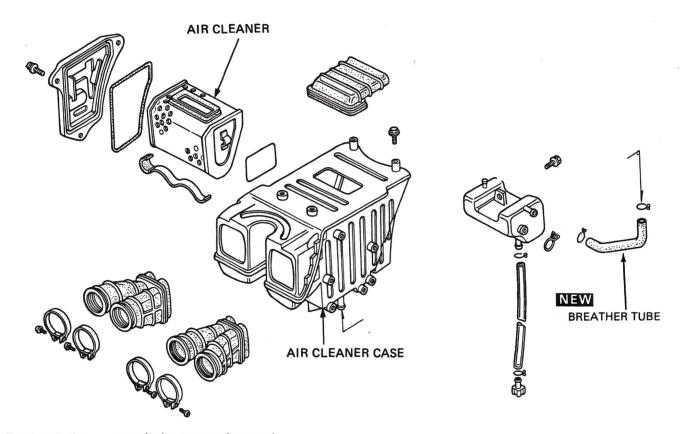


AIR CLEANER CASE/CHAMBER

Check the air cleaner case for deterioration and replace if necessary.

CRANKCASE VENTILATION SYSTEM

Check that the breather tube is not restricted.



The installation sequence is the reverse of removal.

PURGE CONTROL VALVE INSPECTION (California model)

NOTE:

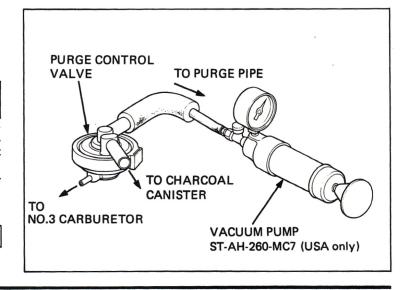
The purge control valve should be inspected if hot restart is difficult.

Check all fuel tank, Purge Control Valve (PCV), and charcoal canister hoses to be sure they are not kinked and are securely connected.

Replace any hose that shows signs of damage or deterioration.

NOTE:

The PCV is located under the carburetors.



Disconnect the PCV hose from the 5-way joint, the hose from the No. 3 carburetor and the hose from the charcoal canister. Remove the PCV from its mount. Refer to the routing label attached to the inside of the frame right side cover for hose connecions.

Connect a vacuum pump to the 8 mm I.D. hose that goes to the 5-way joint. Apply the specified vacuum to the PCV.

SPECIFIED VACUUM: 250 mm (9.8 in) Hg

The specified vacuum should be maintained. Replace the PCV if vacuum is not maintained. Remove the vacuum pump and connect it to the hose that goes to the No. 3 carburetor body. Apply the specified vacuum to the PCV.

SPECIFIED VACUUM: 250 mm (9.8 in) Hg

The specified vacuum should be maintained. Replace the PCV if vacuum is not maintained.

Connect a pressure pump to the 8 mm I.D. hose that goes to the charcoal canister. While applying the specified vacuum to the PCV hose that goes to the No. 3 carburetor body, pump air through the canister hose. Air should flow through the PCV and out the hose that goes to the 5-way joint. Replace the PCV if air does not flow out.

CAUTION:

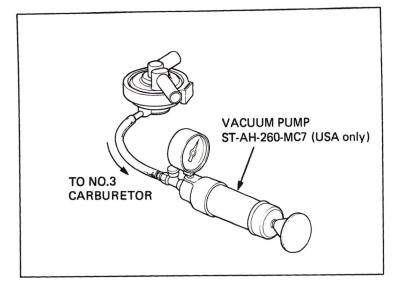
To prevent damage to the purge control valve, do not use high air pressure sources. Use a hand operated air pump only.

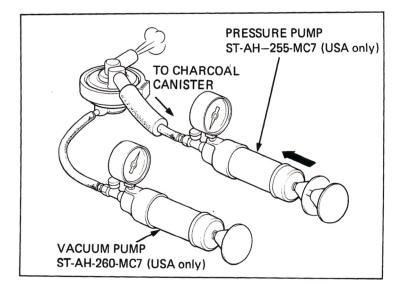
Remove the pumps, install the PCV on its mount, route and reconnect the hoses according to the routing label.

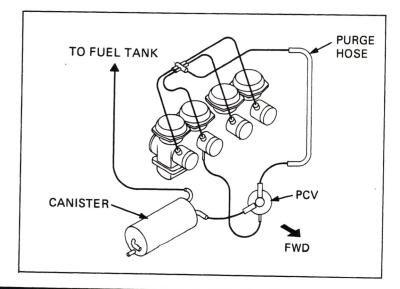
Route the vacuum tubes as described on the Vacuum Hose Routing Label.

NOTE:

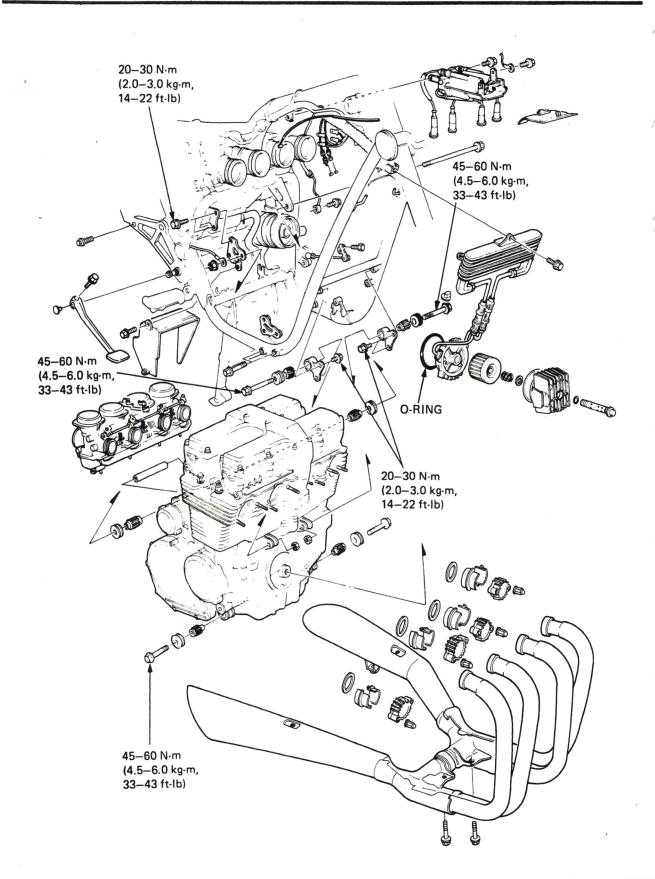
- Be careful not to bend, twist or kink the tubes when installing.
- Slide the end of each tube competely onto its fitting and secure with the hose clamps.
- Secure with the hose clamps whenever specified.
- Check that the hoses are not contacting sharp edges or corners.













5. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION 5-1
ENGINE REMOVAL 5-2
ENGINE INSTALLATION 5-7

SERVICE INFORMATION

GENERAL

The following parts or components can be serviced with the engine installed in the frame:

· Clutch (except the clutch outer)

Shift linkage

· Starter motor

Camshaft

· Cylinder head

CarburetorCylinder

AlternatorPiston

SPECIFICATIONS

Engine

75 kg (165 lb)

Oil capacity

2.5 liter (2.6 US qt, 2.2 Imp qt) after oil filter and oil change

2.2 liter (2.3 US qt, 1.9 Imp qt) after oil change 3.2 liter (3.5 US qt, 2.8 Imp qt) after disassembly

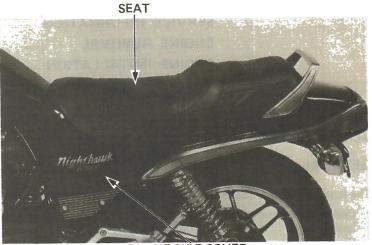
TORQUE VALUES

8 mm bolt	20-30 N·m (2.0-3.0 kg·m, 14-22 ft-lb)
10 mm bolt	45-60 N·m (4.5-6.0 kg-m, 33-43 ft-lb)
Rear axle nut	60-80 N·m (6.0-8.0 kg-m, 43-58 ft-lb)
Spark plug	12-16 N·m (1.2-1.6 kg-m, 90-12 ft-lb)
Muffler joint bolt	24-30 N·m (2.4-3.0 kg-m, 17-22 ft-lb)
Muffler bracket	24-30 N·m (2.4-3.0 kg-m, 17-22 ft-lb)
Brake pedal	20-28 N·m (2.0-2.8 kg-m, 14-20 ft-lb)



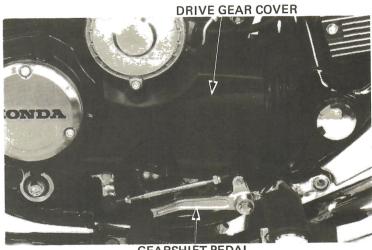
ENGINE REMOVAL

Place the motorcycle on its center stand. Drain the oil from the engine (Page 2-3). Remove both frame side covers and seat.



FRAME SIDE COVER

Remove the drive gear cover and gearshift pedal.

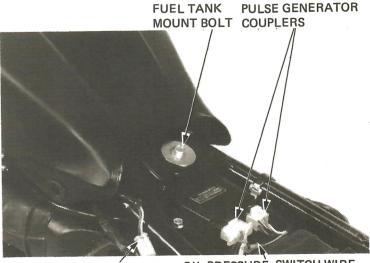


GEARSHIFT PEDAL

Turn the fuel valve "OFF" and disconnect the fuel lines.

Disconnect the fuel gauge coupler, oil pressure switch wire connector and pulse generator couplers.

Remove the fuel tank mount bolt and remove the fuel tank.



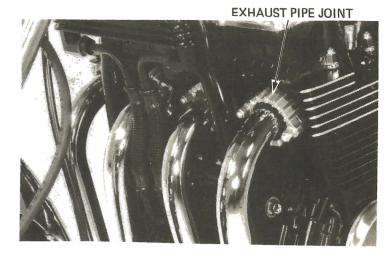
OIL PRESSURE SWITCH WIRE FUEL GAUGE COUPLER CONNECTOR



Remove the exhaust pipe joint nuts and remove the pipe joints.

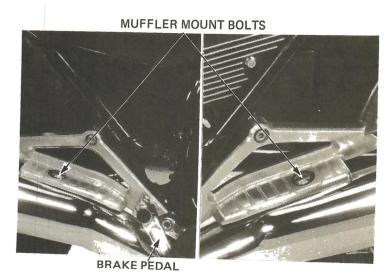
NOTE

When installing the exhaust pipe joints with the " $\ \ ^{\downarrow}$ " mark facing down.

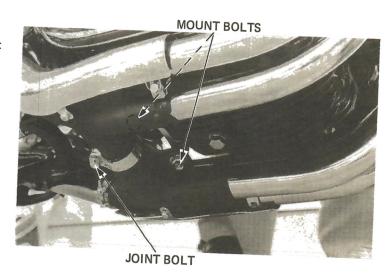


Remove the muffler mount bolts on each side.

Remove the brake pedal.

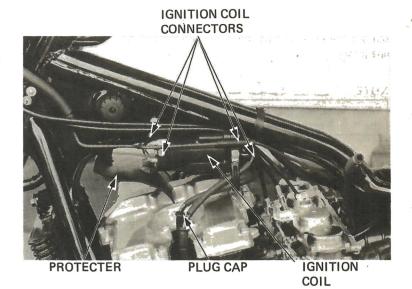


Loosen the center muffler joint bolt. Remove the muffler mount bolts and the exhaust system.



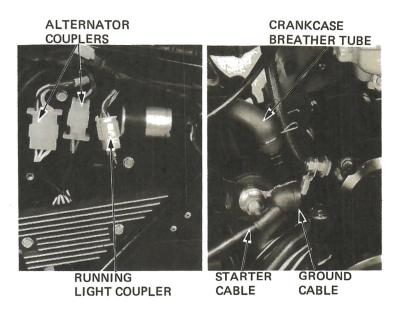


Disconnect the ignition coil connectors. Remove the spark plug caps, protecter and ignition coils.



Disconnect the alternator and running light couplers. Remove the crankcase breather tube.

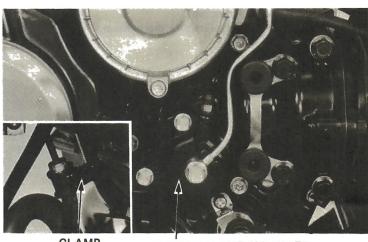
Disconnect the starter cable and ground cable at the starter motor.



Pull off the clutch hose from the hose clamp. Remove the clutch slave cylinder.

NOTE

Do not operate the clutch lever after removing the clutch slave cylinder. To do so will cause difficulty in installing the slave cylinder.



CLAMP CLUTCH SLAVE CYLINDER



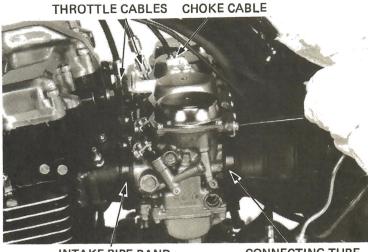
Loosen the band screws on the carburetor connecting tube and intake pipe.

Push the carburetor assembly to the air cleaner case side to remove the assembly from the intake tubes. Then, pull the carburetors out of the connecting tubes.

Remove the choke cable by loosening the setting screw.

Remove the throttle cables.

Remove the carburetor assembly by sliding it out the right side.



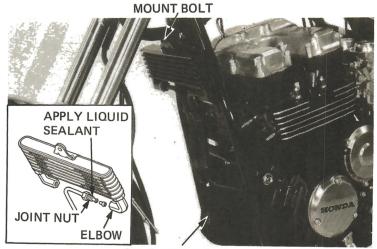
INTAKE PIPE BAND

CONNECTING TUBE BAND

Remove the oil filter bolt and oil cooler mount bolt and remove the oil filter and oil cooler.

NOTE

If the oil pipe is disconnected from the oil cooler. Apply liquid sealant to to the threads of the oil hose joint and tighten the joint nut by holding the elbow with a wrench.



OIL FILTER BOLT

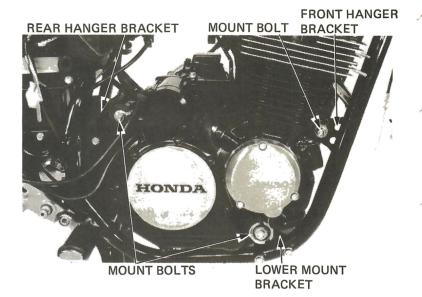
Remove the left swing arm pivot cap.

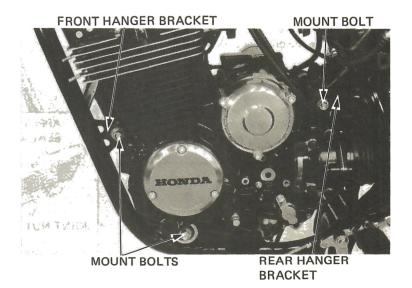
Pull the boot out from the engine. Disengage the drive shaft by holding the universal joint with a screw driver as shown.





Support the engine using the jack or engine lift. Remove the right rear engine hanger bracket. Remove the engine front hanger brackets. Remove the engine lower mounting bracket and the engine mount bolts.





Lift the engine out of the frame from the right side.

Be careful not to touch the left rear engine hanger bracket.





ENGINE INSTALLATION

Install the engine rear mount rubber bushings. Install the engine in the reverse order of removal.

Note the following items:

When installing the front engine hanger bracket, make sure the "IN" mark is positioned to the incide

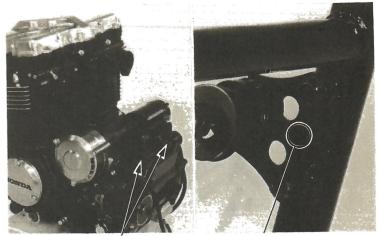
Make sure the wires and cables are properly routed (page 1-8).

Install the exhaust pipe joints with "\\$" mark facing down.

Fill the engine with the recommended oil (page 2-3).

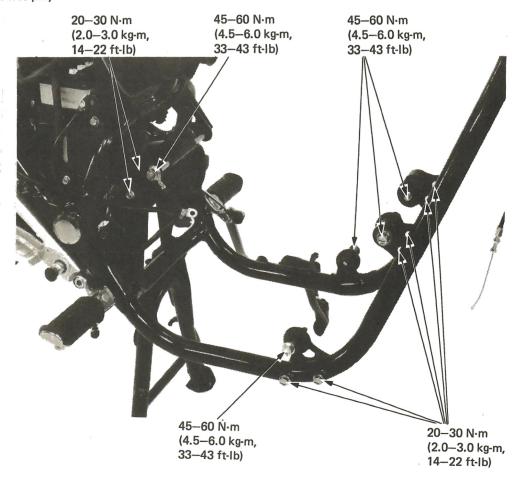
Inspect the following:

- · Throttle cable free play
- · Clutch operation
- · Choke cable free play



BUSHINGS RUBBER

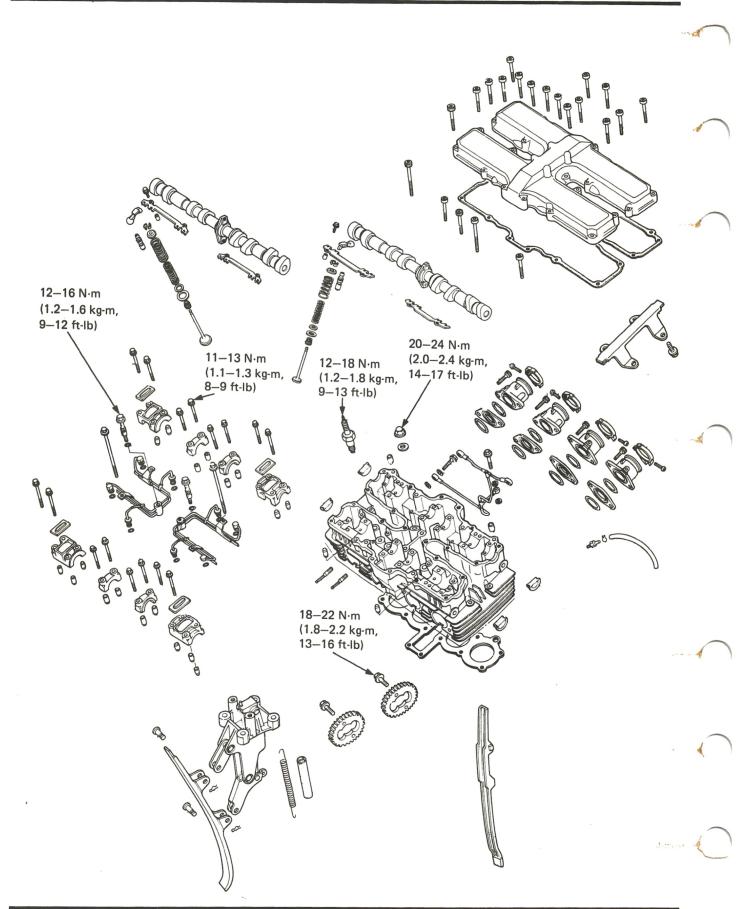
"IN" MARK



TORQUE

8 mm bolt: 20–30 N·m (2.0–3.0 kg·m, 14–22 ft-lb) 10 mm bolt: 45–60 N·m (4.5–6.0 kg·m, 33–43 ft-lb)







6. CYLINDER HEAD/VALVES

GUIDE REPLACEMENT 6–12 SEAT INSPECTION/REFACING 6–13 DER HEAD ASSEMBLY 6–14 DER HEAD INSTALLATION 6–15 AFT INSTALLATION 6–18
E

SERVICE INFORMATION

GENERAL

- The engine uses hydraulic valve tappets that eluminate manual valve adjustments.
- The hydraulic tappets have de-foaming chambers. Before assembling, fill both chambers with clean engine oil.
- Do not turn the camshaft before installing all camshaft holders and filling the de-foaming chambers with engine oil, when
 you adjust the valve timing.
- Whenever the camshaft is removed, bleed air from the tappets thoroughty (See page 6-18).
- Lubricate the camshaft journals and cam lobes with molybdenum disulfied grease for initial lubrication.
- The exhaust and intake camshaft holders are identified by the respective markings (EX1 thru EX4, for the exhaust camshaft holders and IN1 thru (N4 for intake camshaft holders). Start with the EX1 and IN1 holders on the left side (as viewed from the riding position) and install NOS 2.3 and 4 towards the right side and facing the arrow mark toward front.

SPECIFICATIONS

ITEM			STANDARD	SERVICE LIMIT	
Compression pressure			1177 kPa (12 kg/cm ² , 171 psi)	1079—1275 kPa (11—13 kg/cm², 156— 185 psi)	
	Cam height	IN, EX	31.901 mm (1,2559 in)	31.85 mm (1.252 in)	
	O.D.	IN1, IN4, EX1, EX4	22.939-22.970 mm (0.9031-0.9043 in)	22.91 mm (0.902 in)	
Camshaft		IN2, IN3, EX2, EX3	22.909-22.930 mm (0.9019-0.9028 in)	22.88 mm (0.901 in)	
	Oil	IN 1, IN4, EX1, EX4	0.030-0.072 mm (0.0012-0.0028 in)	0.13 mm (0.005 in)	
	clearance	IN2, IN3, EX2, EX3	0.070-0.112 mm (0.0028-0.0044 in)	0.16 mm (0.006 in)	
	Runout		_	0.03 mm (0.001 in)	
	Freelength	IN, EX Outer	34.61 mm (1.363 in)	33.4 mm (1.31 in)	
Valve spring		IN, EX Inner	33.90 mm (1.335 in)	32.7 mm (1.29 in)	
	Preload/ length	IN, EX Outer	27.6-31.8 kg/22.25 mm (60.1-70.1 lb/0.875 in)	-	
		IN, EX Inner	8.65–9.95 kg/18.45 mm (19.1–21.9 lb/0.726 in)	_	



ITEM			STANDARD	SERVICE-LIMIT
Valve, Valve	Valve stem O.D.	IN	4.975-4.990 mm (0.1959-0.1965 in)	4.97 mm (0.195 in)
guide		EX	4.955-4.970 mm (0.1951-0.1957 in)	4.94 mm (0.194 in)
	Valve guide I.D.	IN, EX	5.0-5.012 mm (0.1969-0.1973 in)	5.04 mm (0.198 in)
	Stem-to-guide	IN	0.010-0.037 mm (0.0004-0.015 in)	0.07 mm (0.003 in)
	clearance	EX	0.030-0.057 mm (0.0012-0.0022 in)	0.09 mm (0.004 in)
	Valve face width	IN, EX	1.41-1.98 mm (0.056-0.078 in)	2.0 mm (0.08 in)
Cylinder head	Cylinder head Warpage		_	0.10 mm (0.004 in)
	Valve seat width IN/EX		1.0 mm (0.04 in)	1.5 mm (0.06 in)
	Camshaft journal I.D.		23.000-23.021 mm (0.9055-0.9063 in)	23.05 mm (0.907 in)

TORQUE VALUES

Camshaft holder:

11-13 N·m (1.1-1.3 kg·m, 8-9 ft-lb)

Cam sprocket:

18-22 N·m (1.8-2.2 kg·m, 13-16 ft-lb) Apply locking agent to threads

Cam chain tensioner:

20-24 N·m (2.0-2.4 kg·m, 14-17 ft-lb)

Cylinder head:

20–24 N·m (2.0–2.4 kg·m, 14–17 ft-lb)

Spark plug: Oil pipe joint bolt 6 mm: 12-18 N·m (1.2-1.8 kg·m, 9-13 ft-lb) 10-14 N·m (1.0-1.4 kg·m, 7-10 ft-lb)

8 mm :

12–16 N·m (1.2–1.6 kg·m, 9–12 ft-lb)

10 mm:

16-20 N·m (1.6-2.0 kg-m, 12-14 ft-lb)

TOOLS

Special

Valve guide reamer:

07984-MA60000

Valve guide driver/remover:

07942-MA60000

Hydralic tappet bleeder:

07973-ME90000

Common

Valve spring compressor:

07757-0010000

TROUBLESHOOTING

Engine top-end problems are usually performance-related and can be diagnosed by a compression test, or are engine noises which can be traced to the top-end with a sounding rod or stethoscope.

Low Compression or Uneven Compression

- 1. Valves.
 - Faulty hydraulic tappet.
 - Burned or bent valves.
 - Incorrect valve timing.
 - Broken valve spring.
- 2. Cylinder head.
 - Leaking or damaged head gasket.
 - Warped or cracked cylinder head.
- 3. Cylinder and piston (Refer to Section 7).

Compression too High

 Excessive carbon build-up on piston head or combustion chamber.

Excessive Noise

- 1. Faulty hydraulic valve tappet system.
 - Low engine oil level.
 - Contaminated oil.
 - Low oil pressure.
 - Damaged hydraulic tappet.
- 2. Sticking valve or broken valve spring.
- 3. Damaged or worn camshaft.
- 4. Loose or worn cam chain.
- 5. Worn or damaged cam chain tensioner.
- 6. Worn cam sprocket teeth.



CAMSHAFT REMOVAL

Remove the seat. Turn the fuel valve "OFF" and disconnect the fuel line. Remove the fuel tank.

Disconnect the ignition coil primary leads and remove the spark plug caps.

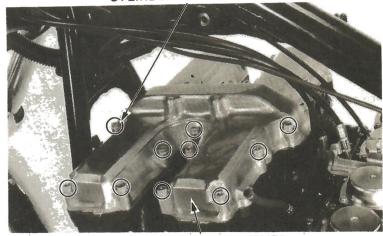
Pull the air guide off, and remove the ignition coils by removing the mounting bolts.



Remove the cylinder head cover bolts and cylinder head cover.

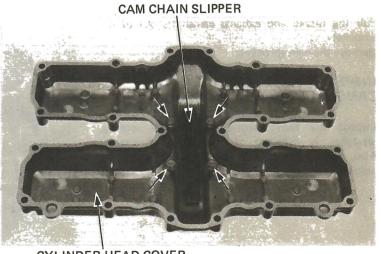
Remove the dowel pins and gasket.





CYLINDER HEAD COVER

Check the cam chain slipper for wear or damage, and replace if necessary.



CYLINDER HEAD COVER



Remove the oil pipe bolts and oil pipes.

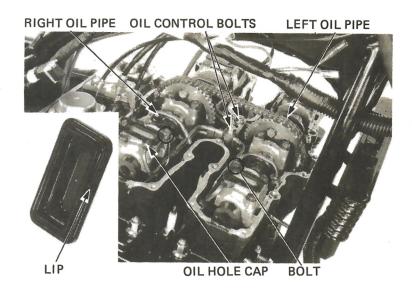
Remove the oil hole caps.

Check the lips of the oil hole cap for damage, replace if necessary.

Remove the pulse generator cover.

Remove the cam sprocket bolts.

Loosen the cam chain by pushing the cam chain tensioner lock pin down and pulling the lock plate up.



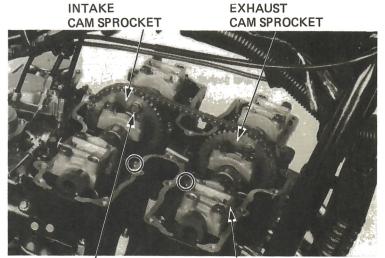
Turn the crankshaft counterclockwise (arrow derection) and then remove the two other cam sprocket bolts.

Remove the cam sprockets from the camshaft flanges.

Remove the cam shaft holders and dowel pins.

NOTE

Camshaft holders are marked EX1, EX2, EX3 and EX4 from the No. 1 cylinder from the exhaust side, and IN1, IN2, IN3 and IN4 from the No. 1 cylinder on the intake side.



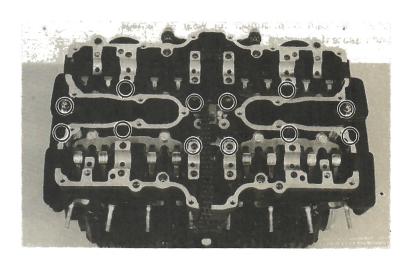
CAM SPROCKET BOLT

CAM HOLDER

Pull the intake and exhaust camshafts out of the sprockets.
Remove the cam sprocket.

INSPECTION CAMSHAFT BEARING SURFACES

Inspect the cam bearing surfaces for scoring, scratches, or evidence of insufficient lubrication. Also, inspect the bearing surfaces of the camshaft holders.



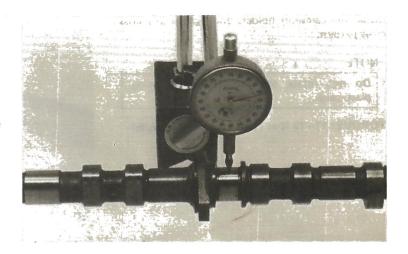


CAMSHAFT RUNOUT

Check camshaft run-out with a dial indicator. Support both ends of the camshaft with V-blocks.

SERVICE LIMIT: 0.03 mm (0.001 in)

Use 1/2 of the total indicator reading to determine runout.



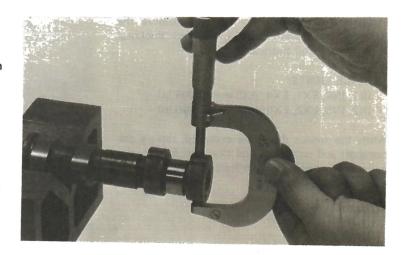
CAM LOBE HEIGHT

Check the camshaft lobes for wear or damage. If the lobes are scored, inspect the rocker arm surfaces also.

Measure the cam lobe height with a micrometer.

SERVICE LIMIT:

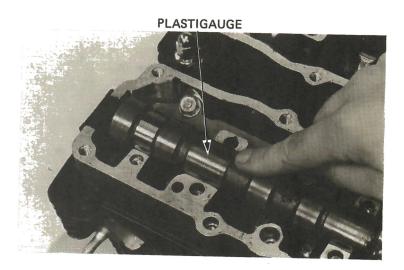
IN, EX: 31.85 mm (1.252 in)



CAMSHAFT OIL CLEARANCE

Wipe any oil from the camshaft journals.

Lay a strip of plastigauge lengthwise on top of each camshaft journal.



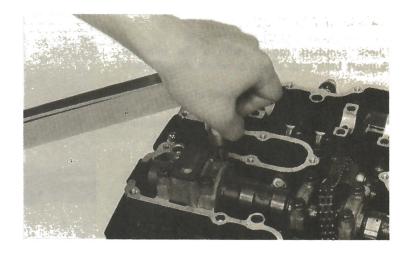


Install the camshaft holders and tighten in a criss-cross pattern.

NOTE

Do not rotate the camshaft when using plastigauge.

TORQUE: 11-13 N·m (1.1-1.3 kg-m, 8-9 ft-lb)

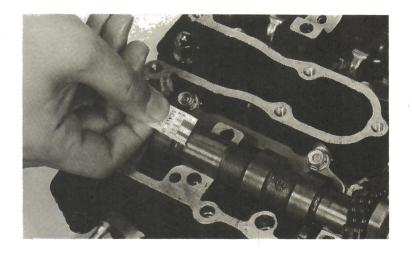


Remove the camshaft holders and measure the width of each plastigauge. The widest thickness determines the oil clearance.

SERVICE LIMITS:

IN1, IN4, EX1, EX4: 0.13 mm (0.005 in) IN2, IN3, EX2, EX3: 0.16 mm (0.006 in)

When the service limits are exceeded, replace the camshaft and recheck the oil clearance. Replace the cylinder head and camshaft holders if the clearance still exceeds service limits.



ROCKER ARM

Inspect the rocker arm followers for damage or abnormal wear, and replace if necessary.





CYLINDER HEAD REMOVAL

Drain the engine oil, and remove the oil cooler. Remove the exhaust pipes and carburetors.

Remove the camshafts, rocker arms, rocker arm and holders.

Do not remove the camshaft holder dowel pins from the cylinderhead.



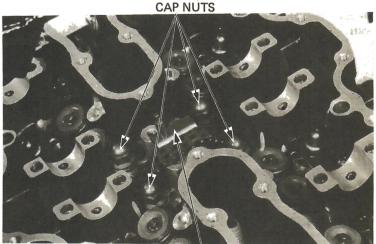
ROCKER ARM HOLDER

ROCKER ARMS

Remove the cam chain tensioner's four cap nuts and remove the tensioner.

NOTE

Use care to prevent the dowel pins of the cam chain tensioner from falling into the crank-



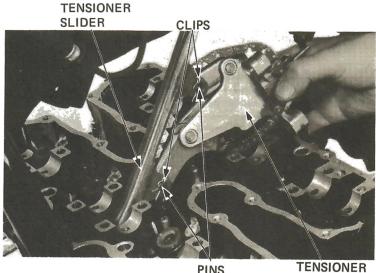
CAM CHAIN TENSIONER

Remove the clips and pins from the tensioner.

NOTE

Use care when removing the clips and pins to prevent them from falling into the crank-

Place a piece of wire through the cam chain. Tie it so the chain does not fall into the crankcase. Separate the tensioner body and slider and remove them.

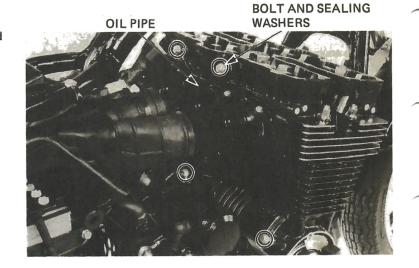


PINS

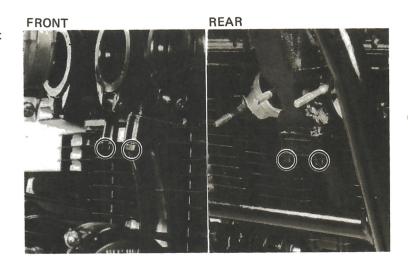
BODY



Remove the oil pipe bolts and sealing washers and oil pipe.



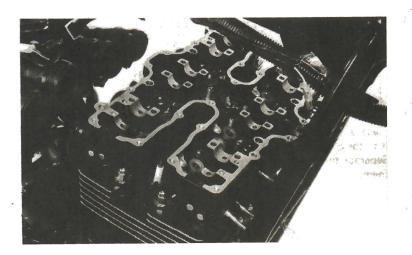
Remove the front and rear cylinder head mount bolts.



Remove the cylinder head cap nuts and washers.

NOTE

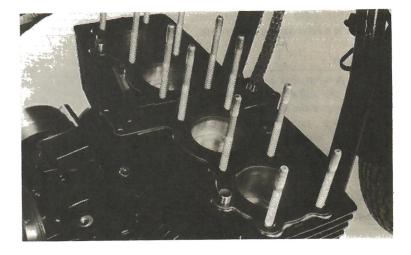
Loosen the nut in 2-3 steps in a crisscross pattern to prevent cylinder head warpage.





Remove the cylinder head.

Remove the cylinder head gasket, dowel pins, and cam chain guide.

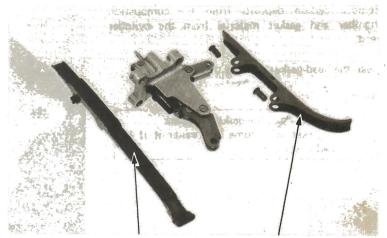


CAM CHAIN GUIDE AND TENSIONER INSPECTION

Inspect the cam chain guide and tensioner for damage or excessive wear.

Inspect the cam chain tensioner slipper for damage or excessive wear.

Replace the spring if it is weak or has been damaged.



CAMCHAIN GUIDE

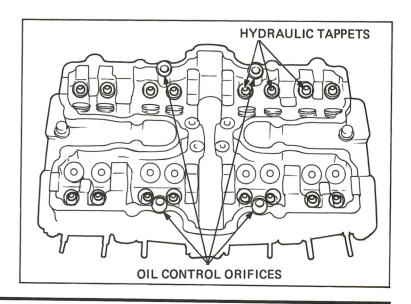
TENSIONER SLIPPER

CYLINDER HEAD DISASSEMBLY

Remove the hydraulic tappets and oil control orifices.

NOTE

Take care not to damage the pivot sphere end of the hydraulic tappet.





Remove the valve cotters, retainers, springs and valves using a valve spring compressor.

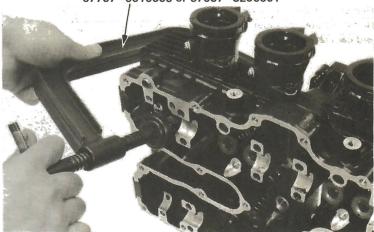
CAUTION

- To prevent loss of tension, do not compress the valve springs more than necessary to remove the keepers.
- Remove valve spring compresser large spring retainer before using to avoid damaging the cylinder head.

NOTE

Mark all disassembled parts to ensure correct reassembly.

VALVE SPRING COMPRESSOR 07757-0010000 or 07957-3290001

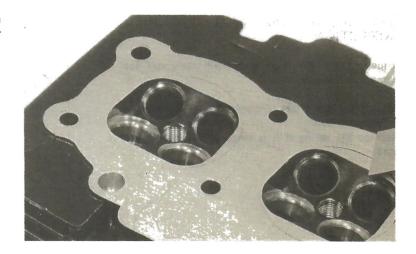


Remove carbon deposits from the combustion chamber and gasket material from the cylinder head.

Clean the head gasket surfaces throughly.

NOTE

- · Avoid damaging the gasket surfaces.
- The gasket will come off easier if it is soaked in solvent.



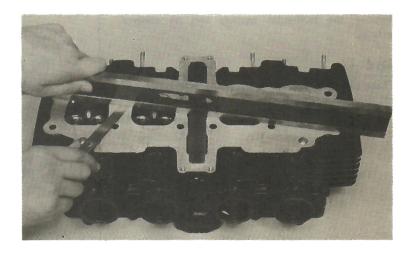
INSPECTION

CYLINDER HEAD

Check the spark plug holes and valve areas for cracks.

Check the cylinder head for warpage with a straight edge and a feeler gauge in an 'X' pattern.

SERVICE LIMIT: 0.10 mm (0.004 in)





VALVE SPRING FREE LENGTH

Measure the free length of the inner and outer valve springs.

SERVICE LIMITS:

INNER SPRING: 33.90 mm (1.335 in) OUTER SPRING: 34.61 mm (1.363 in)

Replace them if they are shorter than the service limit.

VALVE STEM-TO-GUIDE CLEARANCE

Inspect each valve for bending, burning, scratches or abnormal stem wear.

Check valve movement in the guide. Measure and record each valve stem O.D.

SERVICE LIMITS

IN. 4.97 mm (0.195 in) EX. 4.94 mm (0.194 in)

NOTE

Ream the guides to remove any carbon build-up before checking clearance.

Measure and record each valve guide I.D. using a ball gauge or inside micrometer.

SERVICE LIMIT:

IN. 5.04 mm (0.198 in) EX. 5.04 mm (0.198 in)

Subtract each valve stem O.D. from the corresponding guide I.D. to obtain the stem to guide clearance.

SERVICE LIMITS:

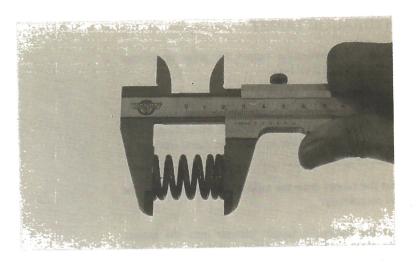
IN. 0.07 mm (0.003 in) EX. 0.09 mm (0.004 in)

If the stem-to-guide clearance exceeds the service limits, determine if a new guide with standard dimensions would bring the clearance within tolerance. If so, replace any guides as necessary and ream to fit.

If the stem-to-guide clearance exceeds the service limits with new guides, replace the valves and guides.

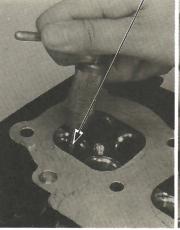
NOTE

Reface the valve seats whenever the valve guides are replaced (page 6-14).





VALVE GUIDE REAMER 07984-MA60000







HYDRAULIC TAPPET

Inspect the hydraulic tappet for wear or damage or for a clogged oil hole.

CAUTION

- · Never attempt to disassemble the tappets.
- Always use the special tool when bleeding the tappets. Use of wire can cause damage to them,

Put the tappet onto the tappet bleeder and drain the oil completely.

Put the hydraulic tappet bleeder into the tappet and place them in a jar filled with kerosene or light oil.

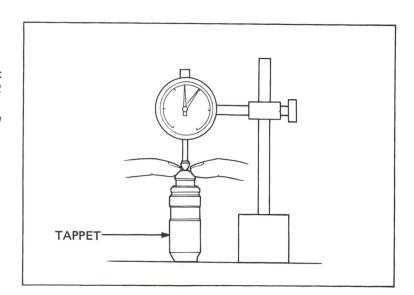
Hold the tappet upright and pump the tappet until air bubbles stop coming out. Remove the tool.

Set the dial gauge and tappet as slow.

Compress the tappet quickly with force. The tappet is normal if the amount of compression is 0-0.2 mm (0-0.008 in).

Replace the tappet if the amount exceeds the above limit.





VALVE GUIDE REPLACEMENT

Remove the camshaft holder dowel pins. Support the cylinder head and drive the guide from the valve port out.

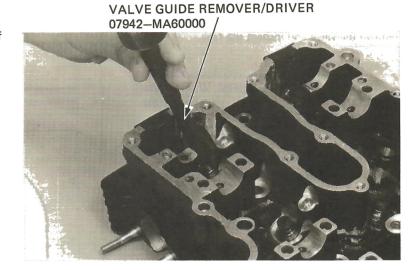
NOTE

When driving out the valve guide, do not damage the head.





Install an oversize valve guide from the top of the head.



Ream the new valve guide after installation.

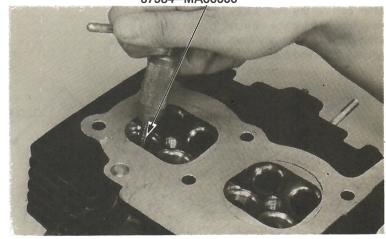
NOTE

- Use cutting oil on the reamer during this operation.
- Always rotate the reamer in the same direction when inserting and removing it.

Reface the valve seat (page 6-15).

Clean the cylinder head thoroughly to remove any metal particles.

VALVE GUIDE REAMER 07984-MA60000



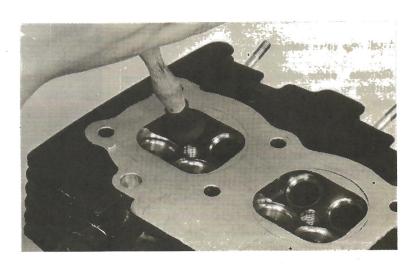
VALVE SEAT INSPECTION/REFACING

Clean all intake and exhaust valves thoroughly to remove carbon deposits.

Apply a light coating of valve lapping compound to each valve face. Lap each valve and seat a few times with light pressure using a rubber hose or other hand-lapping tool.

NOTE

Take care not to allow the compound to enter between the valve stem and guide. After lapping, wash out the compound completely and apply a coat of engine oil to the valve face and seat.





Remove the valve and inspect the face.

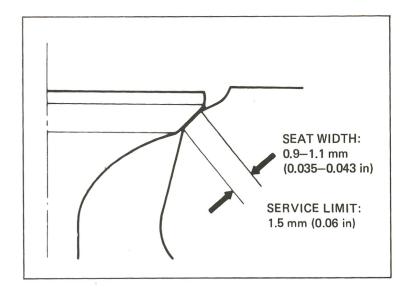
CAUTION

The valves cannot be ground. If the valve face is rough, worn unevenly, or contacts the seat improperly, the valve must be replaced.

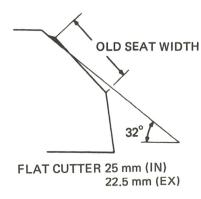
Inspect the valve seat. If the seat is too wide, too narrow, or has low spots, the seat must be ground.

NOTE

Follow the refacer manufacturer's operating instructions.



After cutting the seat, apply lapping compound to valve face, and lap the valve using light pressure. After lapping, wash any residual compound off the cylinder head and valve.



OLD SEAT WIDTH (0.035–0.043 in) 60° INTERIOR CUTTER 22.5 mm (IN. EX) SEAT CUTTER 24.5 mm (IN)

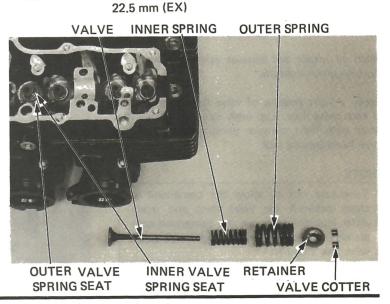
CYLINDER HEAD ASSEMBLY

Install new valve stem seals.

Lubricate each valve stem with molybdenum disulfide grease and insert the valve into the valve guide.

NOTE

To avoid damage to the stem seal, turn the valve slowly when inserting.



Date of Issue: Feb., 1983



Install the valve springs and retainers.

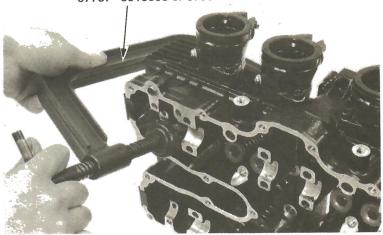
NOTE

Install the valve springs with the tightly wound coils facing the cylinder head.

Install the valve cotters.

CAUTION

To prevent loss of tension, do not compress the valve spring more than necessary to install the valve cotters. VALVE SPRING COMPRESSOR 07757-0010000 or 07957-3290001

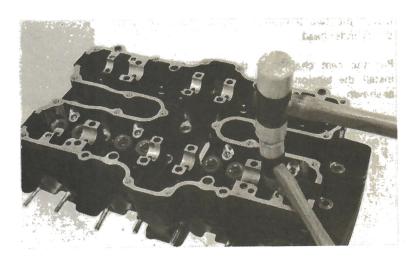


Tap the valve stems gently with a soft hammer to firmly seat the cotters.

NOTE

Support the cylinder head above the work bench surface to prevent possible valve damage.

Clean the cylinder head assembly with solvent, after reassembling, then blow through all oil passages with compressed air.

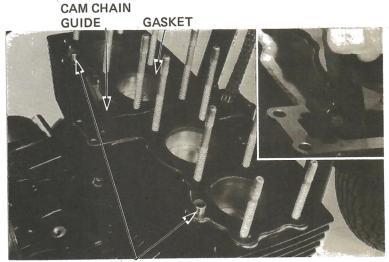


CYLINDER HEAD INSTALLATION

Clean the cylinder head surfaces of any gasket material.

Install a new gasket and the dowel pins.

Install the cam chain guide.



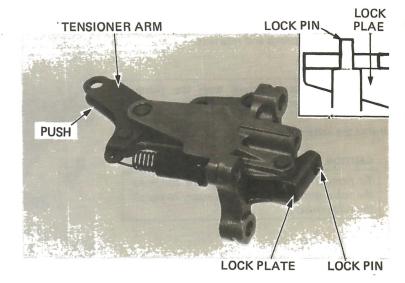
DOWEL PINS



Push on the tensioner arm and lock the arm by setting the lock pin to the lock plate as shown.

Pull the cam chain guide slightly and push it front, then lower the cylinderhead.

Set the cam chain guide properly and set the cylinder head.

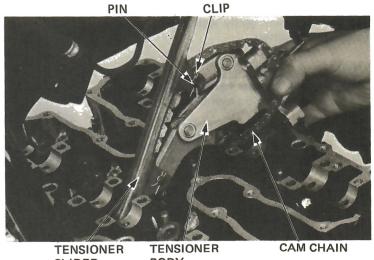


Install the two tensioner locating dowel pins into the cylinder head.

Put the cam chain over the tensioner body and install the tensioner slider with the clips and pins as shown.

NOTE

Be careful not to drop the pins and clips into the crankcase.



SLIDER

BODY

Coat the cam chain tensioner attaching surface with sealant.

Install the tensioner with the cap nuts loosely.



CAM CHAIN TENSIONER



Tighten the cylinder head cap nuts in the sequence shown.

TORQUE:

TENSIONER NUTS: 20-24 N·m

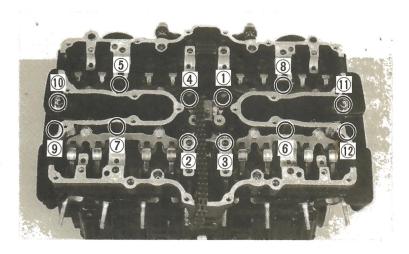
(2.0-2.4 kg-m, 14-17 ft-lb)

CYLINDER NUTS: 20-24 N·m

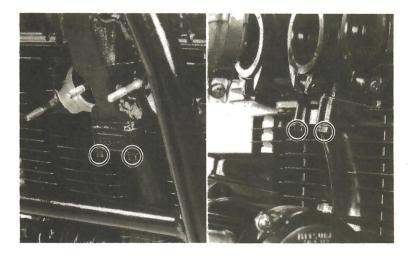
(2.0-2.4 kg-m, 14-17 ft-lb)

NOTE

Apply molybdenum disulfide grease to the threads of the cylinder bolts.



Tighten the front and rear cylinder head mounting bolts.



Blow the oil pipe and oil control bolt with compressed air.

Install the oil pipe and tighten the bolts.

TORQUE:

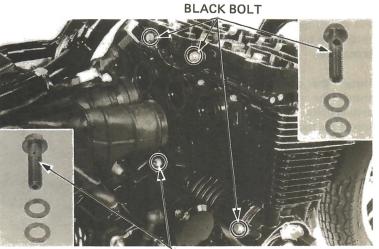
8 mm bolt: 12—16 N·m (1.2—1.6 kg·m, 9—12 ft·lh)

10 mm,bolt: 16-20 N·m (1.6-2.0 kg·m, 12-14 ft-lb)

NOTE

Be sure the black and silver bolts are in the correct position as shown.

Install the carburetors. Exhaust system and oil cooler.



SILVER BOLT

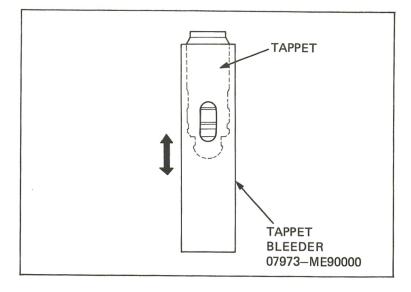


CAMSHAFT INSTALLATION

NOTE

Whenever the camshaft is removed, bleed the all hydraulic tappets and fill the oil pockets of the cylinder head with clean engine oil.

Put the tappet bleeder into the tappet as shown and drain the engine oil from the tappet completely by pumping the tappet. Remove the tool.



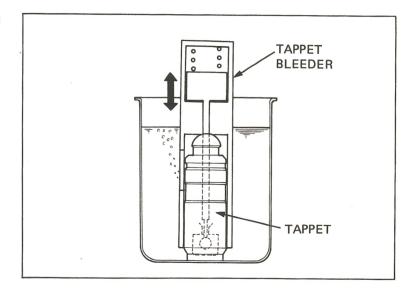
Check that the plunger move smoothly by pushing the plunger.

Replace the tappet if stick.

Put the tappet in the jar filled with light oil or kerosen and set the tappet bleeder into the tappet as shown. Hold the tappet upright and pump it until air bubbles stop coming out. Remove the tool, then remove the tappet from the jar.

NOTE

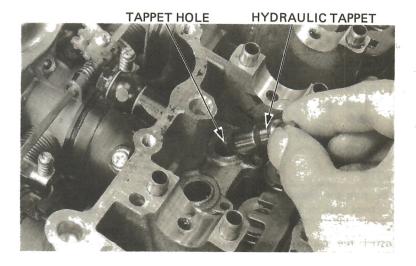
Pump the tappet bleeder at one time per about one second.



Fill the all tappet hole up with clean engine oil up. Install the bled hydraulic tappets as described above procedure.

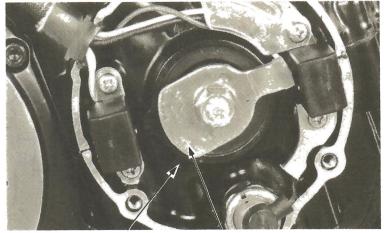
Install the dowel pins into the cylinder head. Install the rocker arm holders, and tighten the setting bolts.

Install the rocker arms.





Turn the crankshaft counter-clockwise and align the "T" mark on the pulse rotor with the " Δ " mark on the crankcase.



INDEX MARK

"T" MARK

Lubricate the camshaft bearings with molybdenum disulfide grease.

Set the cam sprockts onto the camshafts with the timing marks facing out.

Place the intake and exhaust camshafts on the cylinder head with the No. 1 cam lobes facing up.



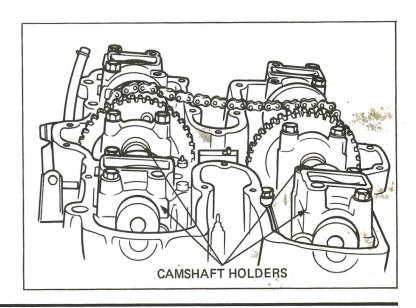
NO. 1 CAM LOBES

Install the camshaft holder dowel pins if remove them.

Install each camshaft holder to its original position with the arrow marks facing toward the front.

Tighten the camshaft holder bolts to the specified torque in a criss-cross pottern in 2-3 steps.

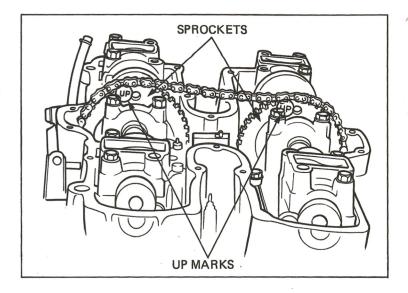
TORQUE: 11-13 N·m (1.1-1.3 kg-m, 8-9 ft-lb)





Fill the oil pocket of the camshaft holders with clean engine oil.

Place the cam chain over the cam sprockets, align the ponch marks on each sprocket with the cylinder head mating surface. The "up" marks should be facing up as shown.

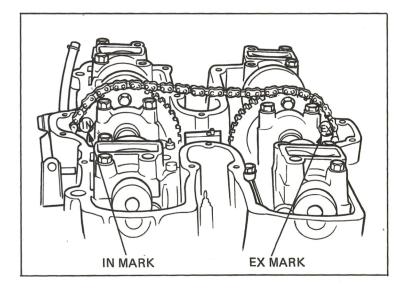


First align the IN mark of the IN sprocket with cylinder head surface. Align the sprocket bolt holes by turning the crankshaft clockwise and install the intake sprocket bolt.

Then return the crankshaft and align the EX mark with the cylinder head surface as shown and install the sprocket bolt.

Tighten the four cam sprocket bolts to the specified torque.

TORQUE: 22-26 N·m (2.2-2.6 kg-m, 16-19 ft-lb) Push the cam chain tensioner locking pin to the rear to free the cam chain tensioner.



Apply clean engine oil to new O-rings. Install the O-rings onto the oil pipes and oil control bolts.

Install the oil pipes onto the cylinder head. Tighten the bolts to the specified torque.

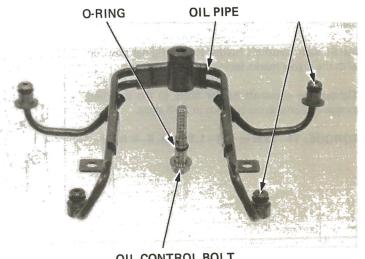
TORQUE:

OIL PIPE SET BOLT: 12-16 N·m

(1.2-1.6 kg-m, 9-12 ft-lb)

OIL CONTROL BOLT: 10-14 N·m

(1.0-1.4 kg-m, 7-10 ft-lb)



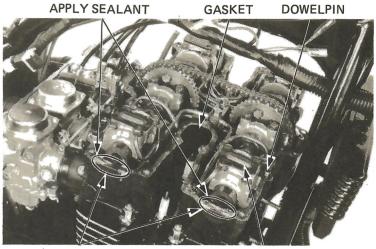
OIL CONTROL BOLT



Apply liquid sealant to the cylinder head hole plugs and install the plugs.

Install the oil hole covers.

Install a new gasket and the dowel pins.



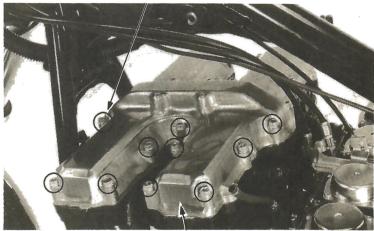
PLUGS

OIL HOLE COVER

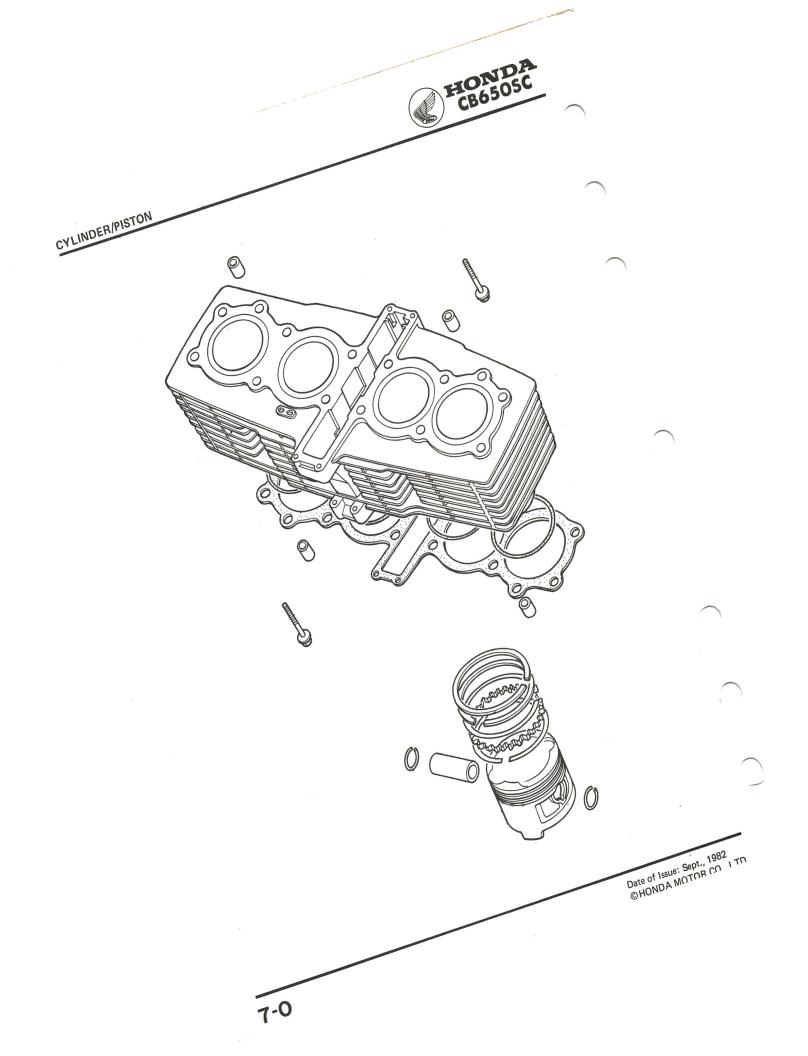
Install the cylinder head cover and tighten the cylinder head cover bolts.

Install the ignition coil, fuel tank and seat.

CYLINDER HEAD COVER BOLT



CYLINDER HEAD COVER





7. CYLINDER/PISTON

SERVICE INFORMATION 7-1 PISTON REMOVAL 7-3
TROUBLESHOOTING 7-1 PISTON INSTALLATION 7-6
CYLINDER REMOVAL 7-2 CYLINDER INSTALLATION 7-7

SERVICE INFORMATION

GENERAL

· All cylinder/piston maintenance and inspection can be accomplished without removing the engine from the frame.

SPECIFICATIONS

		STANDARD	SERVICE LIMIT
I.D.		60.000-60.010 mm (2.3622-2.3626 in)	60.10 mm (2.367 in)
Warpage		_	0.10 mm (0.004 in)
Piston ring-to-ring	TOP	0.015-0.045 mm (0.0006-0.0018 in)	0.06 mm (0.002 in)
groove clearance	SECOND	0.015-0.045 mm (0.0006-0.0018 in)	0.06 mm (0.002 in)
	TOP	0.15-0.30 mm (0.0059-0.012 in)	0.5 mm (0.02 in)
Ring end gap	SECOND	0.15-0.30 mm (0.0059-0.012 in)	0.5 mm (0.02 in)
	OIL (SIDE RAIL)	0.30-0.90 mm (0.012-0.035 in)	1.1 mm (0.04 in)
Piston O.D.		59.970-59.990 mm (2.3610-2.3618 in)	59.9 mm (2.36 in)
Piston pin bore		15.002-15.008 mm (0.5906-0.5909 in)	15.05 mm (0.592 in)
Connecting rod small end I.D.		15.016-15.034 mm (0.5912-0.5909 in)	15.07 mm (0.593 in)
Piston pin O.D.		14.994-15.000 mm (0.5903-0.5906 in)	14.98 mm (0.589 in)
Piston-to-piston pin clearance		0.002-0.014 mm (0.0001-0.0006 in)	0.04 mm (0.002 in)
Cylinder-to-piston clearance		0.010-0.050 mm (0.0003-0.0020 in)	0.10 mm (0.004 in)
	Warpage Piston ring-to-ring groove clearance Ring end gap Piston O.D. Piston pin bore Connecting rod sma Piston pin O.D. Piston-to-piston pin	Warpage Piston ring-to-ring groove clearance Ring end gap Piston O.D. Piston pin bore Connecting rod small end I.D. Piston-to-piston pin clearance	I.D. 60.000-60.010 mm (2.3622-2.3626 in)

TROUBLESHOOTING

TOOLS

Special

Piston Base (2 required)

Piston Ring Compressor (2 required)

07958-3000000 07954-3740000

Compression low

- 1. Worn cylinder or piston rings
- 2. Leaking valve seats

Excessive smoke

- 1. Worn cylinder or piston
- 2. Improper installation of piston rings
- 3. Scored or scratched piston or cylinder wall

Overheating

- 1. Excessive carbon build-up on the piston or combustion chamber wall.
- 2. Incorrect spark plug.

Knocking or abnormal noise

- 1. Worn piston and cylinder
- 2. Excessive carbon build-up
- 3. Low octane fuel.

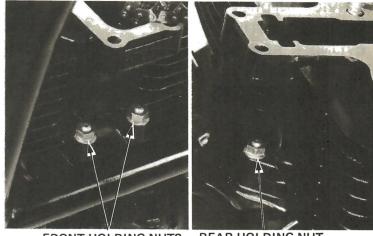


CYLINDER REMOVAL

Remove the cylinder head (Section 6).

Remove the cam chain tensioner guide.

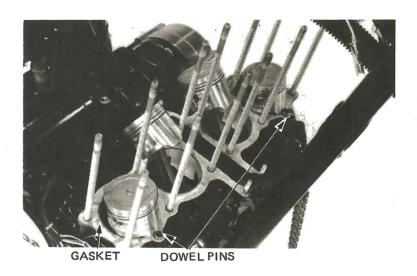
Remove the front and rear cylinder holding nuts and remove the cylinder.



FRONT HOLDING NUTS

REAR HOLDING NUT

Remove the cylinder gasket and dowel pins.

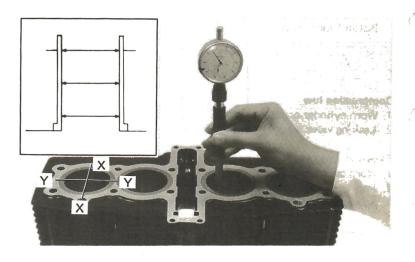


CYLINDER INSPECTION

Inspect the cylinder bores for wear or damage.

Measure the cylinder I. D. at three levels in \boldsymbol{X} and \boldsymbol{Y} axis.

SERVICE LIMIT: 60.10 mm (2.367 in)





Inspect the top of the cylinder for warpage. Check in an X pattern as shown.

SERVICE LIMIT: 0.10 mm (0.004 in)



PISTON REMOVAL

Place rags in the crankcase openings.

Remove each piston pin clip with needle nose pliers being careful not to allow clips to fall into the crankcase.

Press the piston pins out.

Mark each pistons to indicate its cylinder position for reassembly.



PISTON/PISTON RING INSPECTION

Inspect the piston ring-to-groove clearance.

SERVICE LIMIT:

TOP: SECOND: 0.06 mm (0.002 in) 0.06 mm (0.002 in)

Mark the rings so that they can be returned to correct piston during reassembly.

Inspect the pistons for damage and cracks; ring grooves for wear.





Insert each piston ring into the cylinder, and inspect the end gap.

SERVICE LIMITS:

TOP:

0.50 mm (0.020 in)

SECOND:

0.50 mm (0.020 in)

OIL (Side rail): 1.10 mm (0.043 in)



Measure the piston O.D. 14 mm (0.6 in) from the bottom of the skirt and 90° to the piston pin hole.

SERVICE LIMIT: 59.9 mm (2.36 in)

Calculate the cylinder-to-piston clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



Measure the piston pin hole I.D.

SERVICE LIMIT: 15.05 mm (0.592 in)

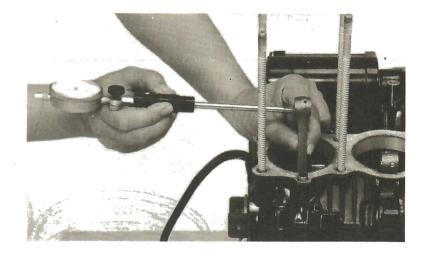






Measure the connecting rod small end I. D.. (See Section 12 for replacement procedure)

SERVICE LIMIT: 15.07 mm (0.593 in)



Measure the piston pin O. D..

SERVICE LIMIT: 14.98 mm (0.590 in)

Determine the piston-to-piston pin clearance.

SERVICE LIMIT: 0.04 mm (0.002 in)

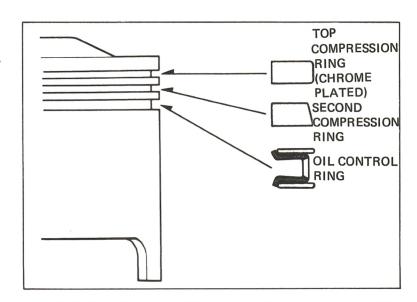


PISTON RING INSTALLATION

Install the piston rings with the markings facing up.

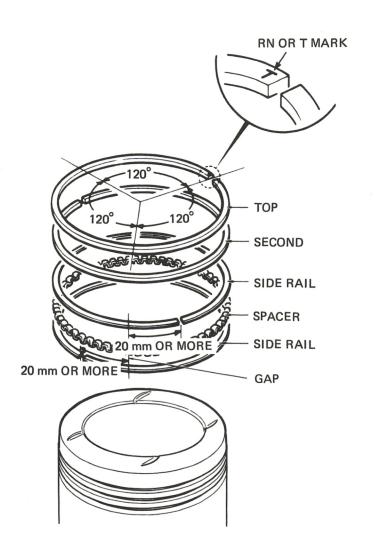
NOTE

After installation, the rings should rotate freely in the grooves.





Space the piston ring end gaps 120 degrees apart. Do not align the gaps in the oil rings.



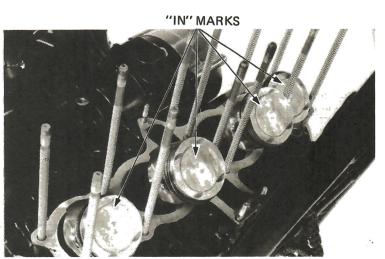
PISTON INSTALLATION

Apply molybdenum disulfide grease to the connecting rod small ends.

Install the pistons, piston pins and clips. Be careful not to drop clips into the crankcase.

NOTE

- Position the "IN" mark on the piston crown toward the intake side.
- Install the pistons in their original positions.





CYLINDER INSTALLATION

Install the dowel pins and a new gasket.



GASKET

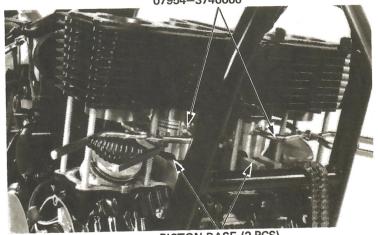
DOWEL PINS

Place the No. 2 and 3 pistons at TDC.

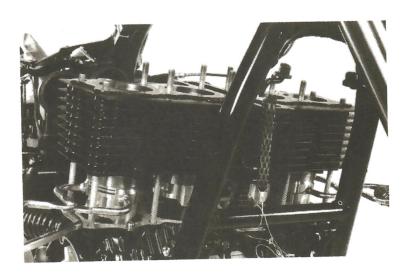
Attach piston ring compressors to the No. 2 and 3 pistons and slide the cylinder cue the pistons.

After the cylinder is over the No. 2 and 3 pistons, attach the compressors to the No. 1 and 4 pistons and install the cylinder.





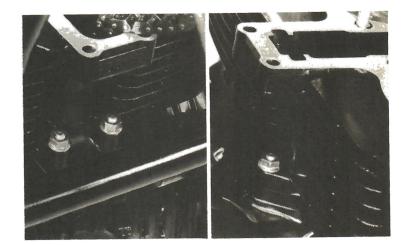
PISTON BASE (2 PCS) 07958-3000000





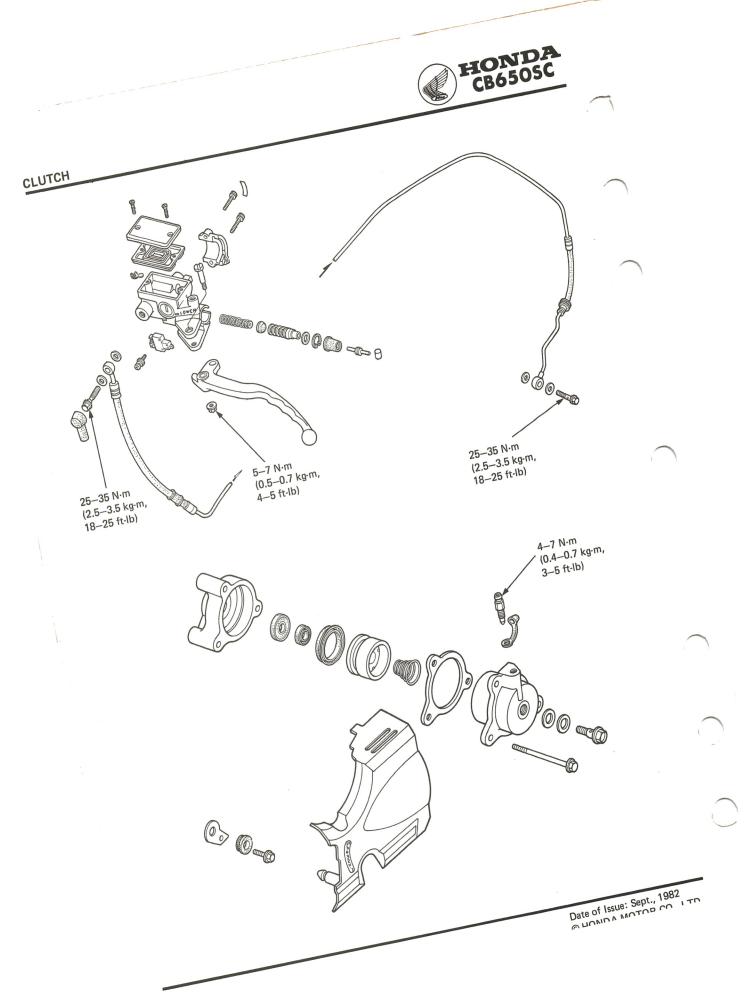
Install the cylinder holding nuts securely.

Install the cylinder head (Section 6).





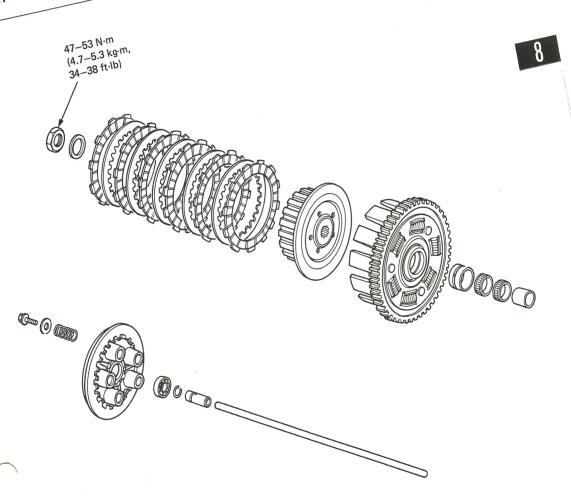
MEMO





8. CLUTCH

HONDA 10050SC		UE CYLINDER	8-11	
HONOSC CB650SC		CLUTCH SLAVE CYLINDER CLUTCH COVER REMOVAL CLUTCH COVER REMOVAL	8_11 8_14	\
	8-2	CLUTCH	0.16	
SERVICE INFORMATION SERVICE INFORMATION ACEMENT	8-4	CLUTCH DISACCE CLUTCH ASSEMBLY CLUTCH COVER INSTALLATION		_
TROUBLES THID REPLACE	8–5	CLUTCH COVE		
CLUTCH FLONG AIR BLEEDING CLUTCH MASTER CYLINDER				
CLUTCH MASTER				





SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the complete clutch system.
- DOT-3 or DOT-4 brake fluid is used for the hydraulic clutch and is referred to as clutch fluid in this section. Do not use other types of fluid as they are not compatible.
- Clutch maintenance can be done with the engine in the frame (except for the clutch outer).

SPECIFICATIONS

			STANDARD	SERVICE LIMIT
Clutch master cylinder	ylinder Cylinder I.D.		14.000-14.043 mm (0.5512-0.5524 in)	14.06 mm (0.553 in)
Piston O.D.		13.957–13.984 mm (0.5495–0.5506 in)	13.94 mm (0.549 in)	
Clutch slave cylinder	Cylinder I.D.		38.100-38.162 mm (1.500-1.5024 in)	38.18 mm (1.503 in)
Piston O.D.		38.036-38.075 mm (1.4975-1.4990 in)	38.02 mm (1.479 in)	
Clutch	Clutch Outer guide O.D. A		31.984-32.000 mm (1.2592-1.2598 in)	31.95 mm (1.258 in)
		В	41.989-42.000 mm (1.6531-1.6535 in)	41.95 mm (1.652 in)
	Spring free length Spring preload/length Disc thickness Plate warpage		35.5 mm (1.40 in)	34.0 mm (1.34 in)
			21.2-23.2 kg/23.8 mm (46-51 lb/0.94 in)	_
			3.22-3.38 mm (0.127-0.133 in)	2.6 mm (0.10 in)
			-	0.30 mm (0.012 in)
Primary driven gear I.D.		42.005–42.021 mm (1.6537–1.6544 in)	42.05 mm (1.656 in)	

TORQUE VALUES

Clutch hose oil bolts Clutch fluid reservoir cover Clutch lever pivot nut

1-2 N·m (0.1-0.2 kg·m, 0.7-0.9 ft-lb) 5-7 N·m (0.5-0.7 kg·m, 4-5 ft-lb) 47-53 N·m (4.7-5.3 kg-m, 34-38 ft-lb) Clutch center lock nut

TOOLS

Special

Snap ring pliers

07914-3230001

Common

Extension bar Lock nut wrench, 17 x 27 mm

Attachment, 42 x 47 mm Pilot, 30 mm

 $\begin{array}{c} 07716-0020500\\ -07716-0020300 \end{array} \\ -commercially \ available \ in \ U.S.A.$

25-35 N·m (2.5-3.5 kg-m, 18-25 ft-lb)

07749-0010000 07746-0010300

07746-0040700

4



TROUBLESHOOTING

Clutch lever soft or spongy

- 1. Air bubbles in hydraulic system
- 2. Low fluid level
- 3. Hydraulic system leaking

Clutch lever too hard

- 1. Sticking piston(s)
- 2. Clogged hydraulic system

Clutch slips

- 1. Hydraulic system sticking
- 2. Discs worn
- 3. Springs weak

Clutch will not disengage

- 1. Air bubbles in hydraulic system
- 2. Low fluid level
- 3. Hydraulic system leaking
- 4. Hydraulic system sticking
- 5. Plates warped

Motocycle creeps with clutch disengaged

- 1. Air bubbles in hydraulic system
- 2. Low fluid level
- 3. Hydraulic system leaking
- 4. Hydraulic system sticking
- 5. Plates warped

Excessive lever pressure

- 1. Hydraulic system sticking
- 2. Lifter mechanism damaged

Clutch operation feels rough

- 1. Outer drum slots rough
- 2. Sticking piston(s)



CLUTCH FLUID REPLACEMENT/ AIR BLEEDING

Check the fluid level with the fluid reservoir parallel to the ground.

CAUTION:

- Install the diaphragm on the reservoir when operating the clutch lever. Failure to do so will allow clutch fluid to squirt out of the reservoir during clutch operation.
- Avoid spilling fluid on painted surfaces.
 Place a rag over the fuel tank whenever the system is serviced.



LOWER LEVEL

CLUTCH FLUID DRAINING

Connect a bleed hose to the bleed valve.

Loosen the slave cylinder bleed valve and pump the clutch lever. Stop operating the lever when no fluid flows out of the bleed valve.

CLUTCH FLUID FILLING

NOTE

Do not mix different types of fluid since they are not compatible.

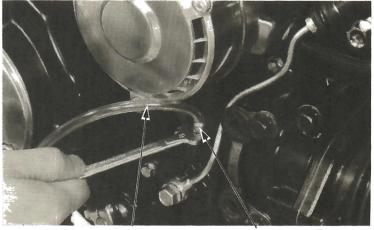
Close the bleed valve, fill the reservoir, and install the diaphragm.

To prevent piston overtravel and clutch fluid seepage, keep a 20 mm (3/4 in) spacer between the handlebar grip and lever when bleeding the clutch system. Pump up the system pressure with the lever until there are no air bubbles in the fluid flowing out of the reservoir small hole and lever resistance is felt. Then bleed the system (below).

AIR BLEEDING

NOTE

- Check the fluid level often while bleeding the clutch to prevent air from being pumped into the system.
- Use DOT-3 or DOT-4 brake fluid from a sealed container.
- Do not mix brake fluid types and never reuse the fluid which has been pumped out during bleeding, or the efficiency of the clutch system will be impaired.



BLEED HOSE

BLEED VALVE





 Squeeze the clutch lever, open the bleed valve 1/2 turn then close the valve.

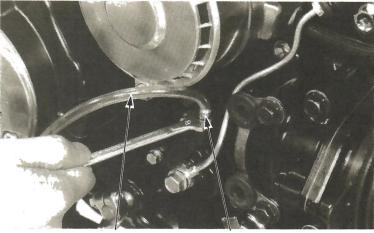
NOTE

Do not release the clutch lever until the bleed valve has been closed again.

2) Release the clutch lever slowly and wait several seconds after it reaches the end of its travel.

Repeat the above steps until bubbles cease to appear in the fluid at the end of the hose.

Fill the fluid reservoir to the upper level.



BLEED HOSE

BLEED VALVE

CLUTCH MASTER CYLINDER

DISASSEMBLY

Drain clutch fluid from the hydraulic system.

Remove the rear view mirror and clutch lever.

Disconnect the clutch switch wires and remove the clutch hose.

CAUTION:

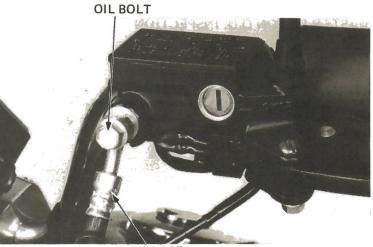
Avoid splling clutch fluid on painted surfaces. Place a rag over the fuel tank whenever the clutch system is serviced.

NOTE

When removing the oil bolt, cover the end of the hose to prevent contamination and secure the hose.

Remove the master cylinder.

Remove the push rod boot, and circlip from the master cylinder body.



CLUTCH HOSE

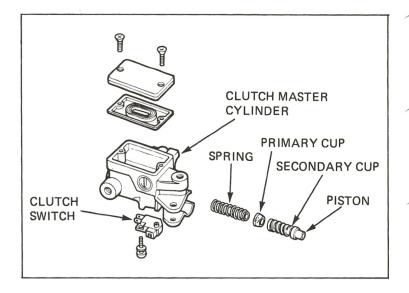


SNAP RING PLIERS 07914-3230001



Remove the piston secondaary cup primary cup and spring.

Remove the clutch switch, if necessary.

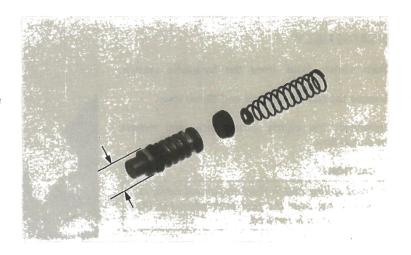


MASTER PISTON O.D. INSPECTION

Measure the master piston O.D.

SERVICE LIMIT: 13.94 mm (0.549 in)

Check the primary and secondary cups for damage before assembly.



MASTER CYLINDER I.D. INSPECTION

Check the master cylinder for scores, scratches or nicks.

Measure the master cylinder I.D.

SERVICE LIMIT: 14.06 mm (0.553 in)





ASSEMBLY

CAUTION:

Handle the master piston, spring, primary cup and secondary cup as set.

Coat all parts with clean brake fluid before assembly.

Install the spring, primary cup and piston.

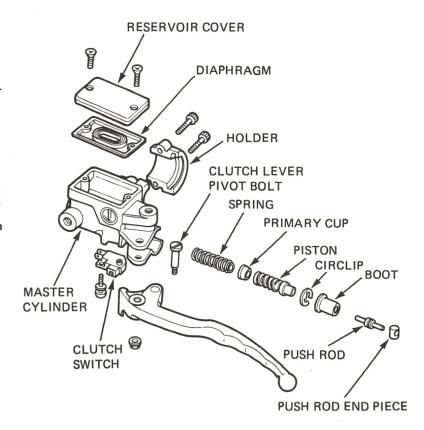
CAUTION:

When installing the cups, do not allow the lips to turn inside out.

Install the circlip making sure it is seated firmly in the groove.

Install the boot and push rod.

Install the clutch switch, if it was removed.



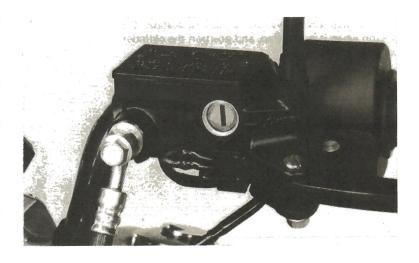
Place the master cylinder on the handlebar and install the holder with the two mounting bolts. Tighten the tip bolt first then the bottom bolt.

Install the oil hose with the bolt and its two sealing washers.

Install the push rod and piece into the clutch lever hole and install the clutch lever.

Connect the clutch switch wires to the switch terminals.

Fill the reservoir and bleed the clutch system (page 8-4).

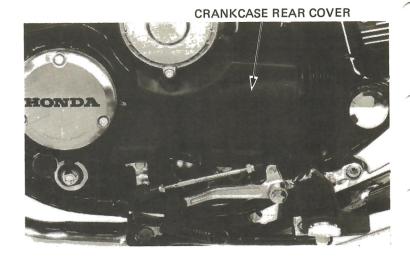




CLUTCH SLAVE CYLINDER

DISASSEMBLY

Remove the left crankcase rear cover.

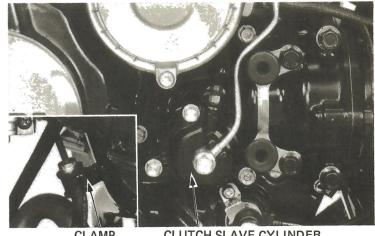


Place a container under the slave cylinder, pull off the clutch hose from the hose clamp, remove the oil bolt and disconnect the clutch hose.

NOTE:

Avoid spilling clutch fluid on painted surfaces.

Remove the slave cylinder.



CLUTCH SLAVE CYLINDER CLAMP

Place a shop towel over the piston to cushion the poston when it is expelled, and position the cylinder with the piston down.

Apply compressed air to the fluid inlet to remove the piston. Use the air in short spurts.

Remove the spring from the slave cylinder.

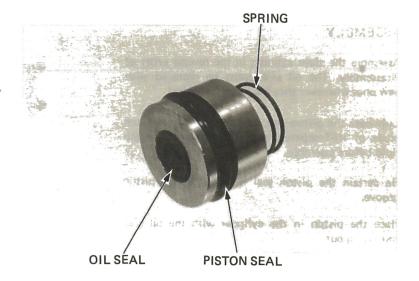




Remove the oil and piston seals.

Clean the piston groove with clutch fluid.

Check the piston spring for weakness or damage.



PISTON O.D. INSPECTION

Check the piston for scoring or scratches.

Measure the outside diameter of the piston with a micrometer.

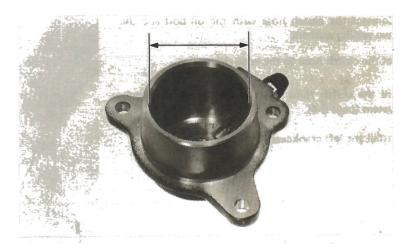
SERVICE LIMIT: 38.02 mm (1.497 in)



CYLINDER I.D. INSPECTION

Check the slave cylinder for scoring or scratches.

Measure the inside diameter of the cylinder bore. SERVICE LIMIT: 38.18 mm (1.503 in)





ASSEMBLY

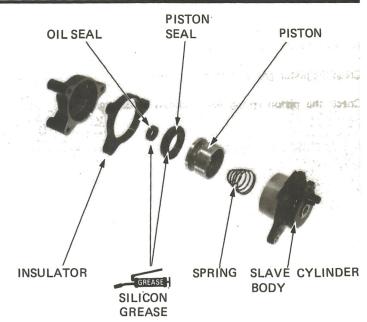
Assemble the slave cylinder in the reverse order of disassembly. The oil seals must be replaced with new ones whenever they have been removed.

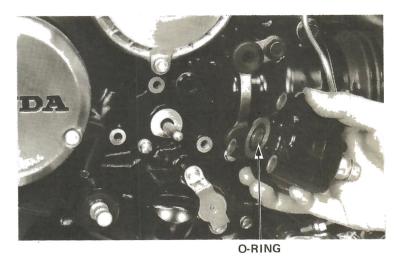
Lubricate the piston and piston seal with a medium grade of Hi-Temperature silicone grease or clutch fluid before assembly.

Be certain the piston seal is seated in the piston groove.

Place the piston in the cylinder with the oil seal end facing out.

Make sure the O-ring is seated on the spacer and install the insulator and slave cylinder.



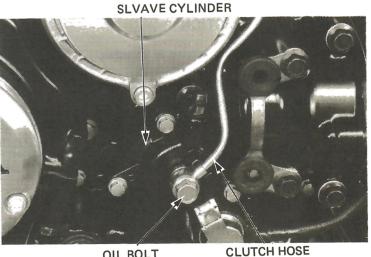


Connect the clutch hose with the oil bolt and the two sealing washers.

Set the clutch hose to the hose clamp.

Fill the clutch fluid reservoir and bleed the clutch system (page 8-4).

Install the left crankcase rear cover.



OIL BOLT

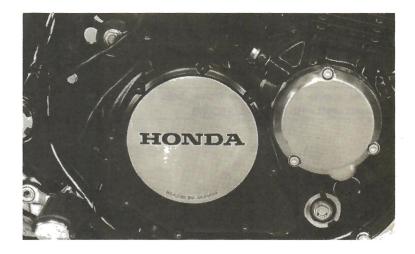


CLUTCH COVER REMOVAL

Drain the engine oil. (page 2-3).

Remove the brake pedal.

Remove the clutch cover and O-ring.



CLUTCH DISASSEMBLY

NOTE

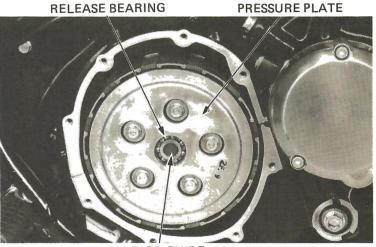
Do not operate the clutch lever after removing the clutch. To do so will cause difficulty in reassembling the clutch.

Remove the bolts and clutch springs.

NOTE

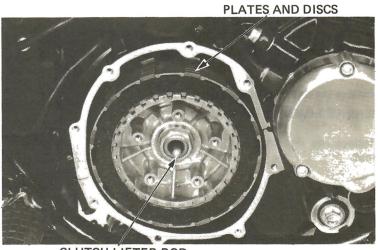
Loosen the bolts in a crisscross pattern in 2-3 steps.

Remove the clutch pressure plate with the clutch lifter guide and release bearing.



LIFTER GUIDE

Remove the clutch lifter rod, clutch discs and plates.



CLUTCH LIFTER ROD

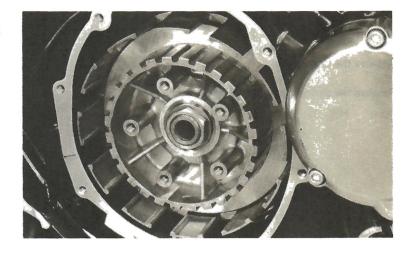


Shift the transmission into TOP gear.

Depress the brake pedal and remove the lock nut and lock washer.

NOTE

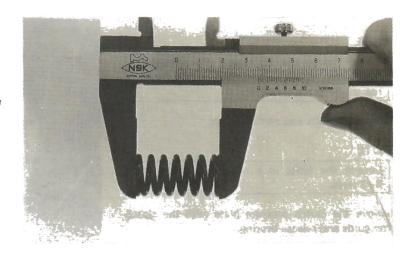
If the engine is out of the frame, hold the output shaft with 07924—ME50000.



CLUTCH SPRING INSPECTION

Measure the clutch spring free length. SERVICE LIMIT: 34.0 mm (1.34 in)

Replace any spring that is shoter than the service limit.



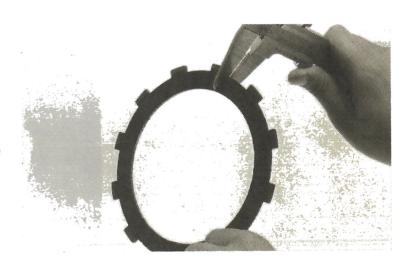
CLUTCH DISC INSPECTION

Replace the clutch discs if they show signs of scoring or discoloration.

Measure the thickness of each disc.

SERVICE LIMIT: 2.6 mm (0.10 in)

Replace any disc that is thinner than the service limit.





CLUTCH PLATE INSPECTION

Check the plate warpage on a surface plate, using a feeler gauge.

SERVICE LIMIT: 0.30 mm (0.012 in)



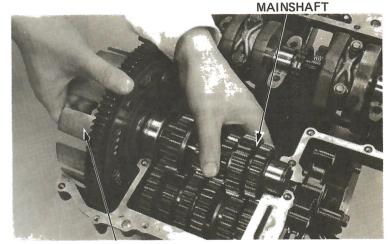
CLUTCH OUTER REMOVAL

Separate the crankcase assembly (section 10).

Remove the clutch outer from the crankcase with the mainshaft, then remove the clutch outer from the mainshaft.

NOTE

Do not damage the slots and gears.



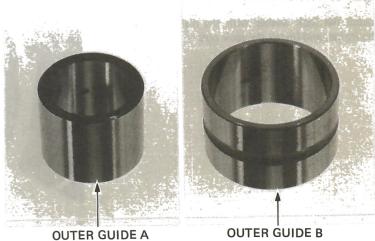
CLUTCH OUTER

CLUTCH OUTER GUIDE INSPECTION

Measure the O.D. of clutch outer guides A and B.

SERVICE LIMIT: A: 31.95 mm (1.258 in)

B: 41.95 mm (1.652 in)





CLUTCH OUTER INSPECTION

Check the slots in the clutch outer for nicks, cuts or indentations made by the friction discs.

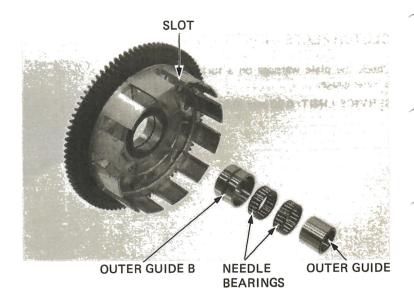
Check the clutch outer needle bearings for damage or excessive play.

Measure the I.D. of the primary driven gear.

SERVICE LIMIT: 42.05 mm (1.656 in)

NOTE

Do not let the primary driven gears off when removing the clutch outer guide B.

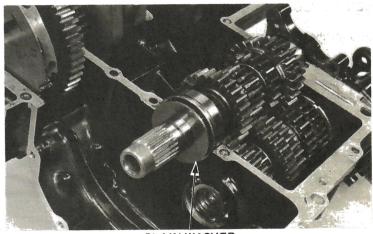


CLUTCH OUTER INSTALLATION

Install the plain washer over the mainshaft with the "OUT" mark facing out.

Assemble the clutch outer, needle bearings and outer guides. Pull the mainshaft up and place the clutch outer over the mainshaft.

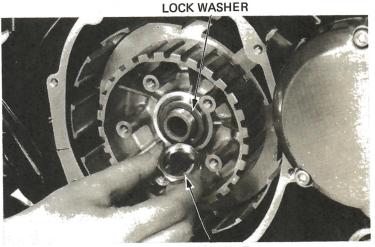
Assemble the crankcase (Section 10).



PLAIN WASHER

CLUTCH ASSEMBLY

Install the lock washer with the dished side facing the inside, and install the lock nut.



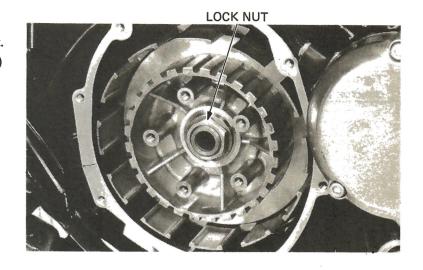
LOCK NUT



Shift the transmission into TOP gear.

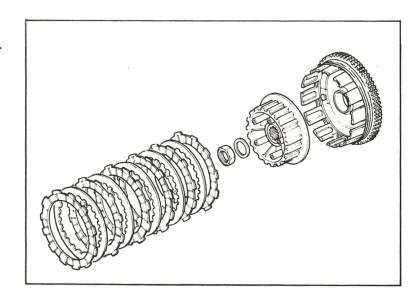
Depress the brake pedal and tighten the lock nut.

TORQUE: 47-53 N·m (4.7-5.3 kg-m, 34-38 ft-lb)



Coat the discs and plates with clean engine oil.

Install the clutch discs and plates as shown.



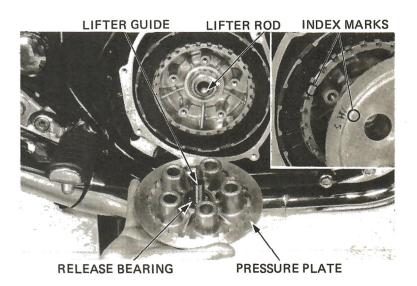
Insert the lifter rod into the mainshaft.

Install the clutch release bearing and lifter guide into the clutch pressure plate.

Install the clutch pressure plate.

NOTE

Align the index marks.

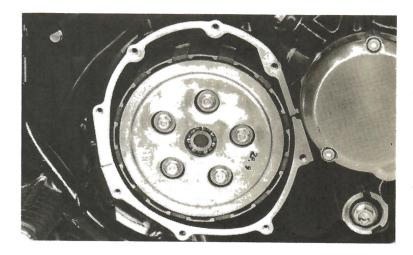




Install the clutch springs, plain washers and bolts.

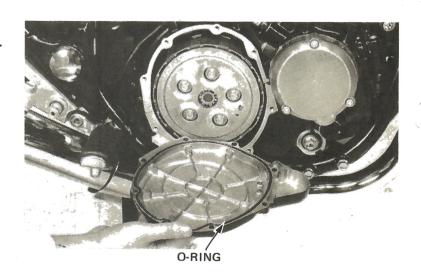
NOTE

Tighten the bolts evenly in 2-3 steps in a crisscross pattern.



CLUTCH COVER INSTALLATION

Install a new O-ring onto the clutch cover as shwon.



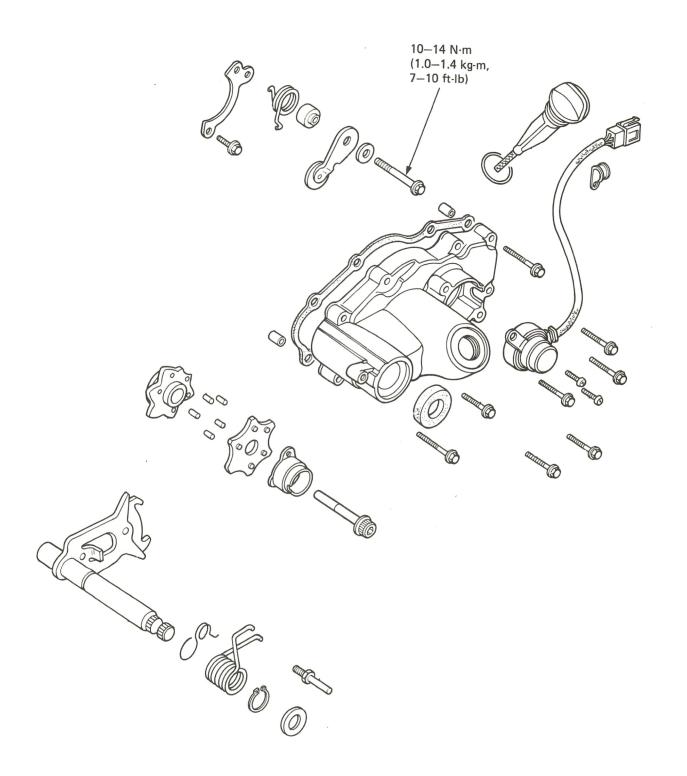
Install the clutch cover and fill the crankcase with the recommended oil (page 2-3).





MEMO







9. GEARSHIFT LINKAGE

SERVICE INFORMATION 9-1
TROUBLESHOOTING 9-1
GEARSHIFT LINKAGE REMOVAL 9-2
GEARSHIFT LINKAGE INSTALLATION 9-4

SERVICE INFORMATION

GENERAL

The gearshift spindle and stopper arms can be serviced with the engine in the frame. If the shift forks, drum and transmission require servicing, remove the engine and separate the crankcase.

TORQUE VALUES

Stopper arm pivot bolt Gear shift pedal 10-14 N·m (1.0-1.4 kg·m, 7-10 ft·lb) 10-15 N·m (1.0-1.5 kg·m, 7-11 ft·lb)

TROUBLESHOOTING

Hard to shift

- 1. Improper clutch operation
- 2. Shift forks bent
- 3. Shift shaft bent
- 4. Shift claw bent
- 5. Shift drum cam grooves damaged

Transmission jumps out gear

- 1. Gear dogs worn
- 2. Shift shaft bent
- 3. Shift drum stopper broken
- 4. Shift forks bent

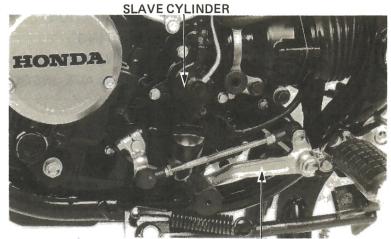


GEARSHIFT LINKAGE REMOVAL

Drain the engine oil.

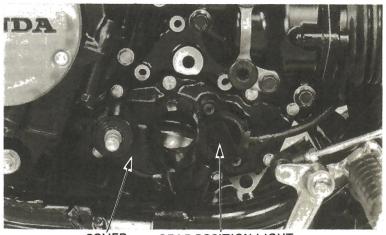
Remove the crankcase left rear cover and the gearshift pedal.

Remove the clutch slave cylinder (page 8-8).



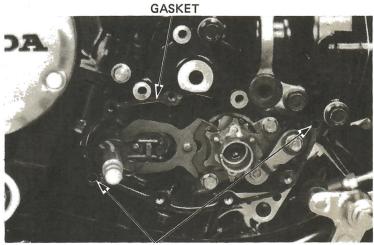
GEAR SHIFT PEDAL

Remove the gear position light switch. Remove the gearshift linkage cover.



COVER GEAR POSITION LIGHT SWITCH

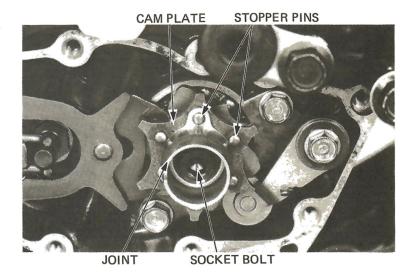
Remove the gasket and dowel pins.



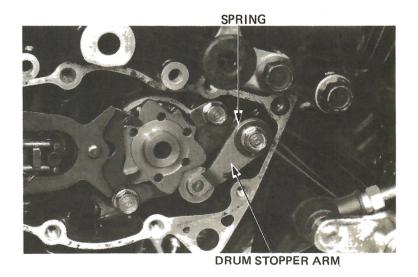
DOWEL PINS



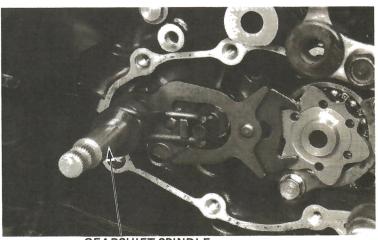
Remove the socket bolt, joint, camplate and roller stopper pins.



Remove the drum stopper arm bolt, drum stopper arm and spring.



Pull the gearshift spindle out of the case.



GEARSHIFT SPINDLE

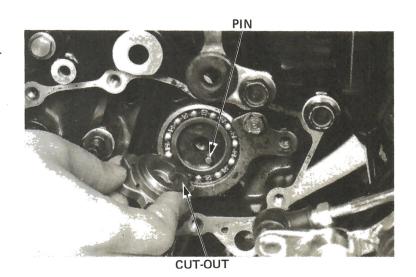


Remove the roller stopper plate.



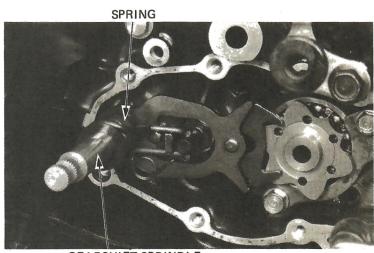
GEARSHIFT LINKAGE INSTALLATION

Install the roller stopper plate, aligning the stopper plate pin and the cut-out in the stopper plate.



Assemble the gearshift spindle and return spring.

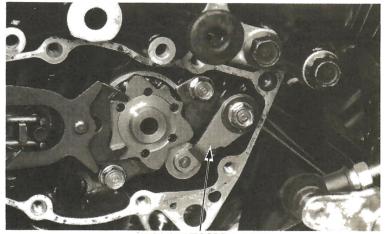
Install the gearshift spindle.



GEARSHIFT SPRINDLE

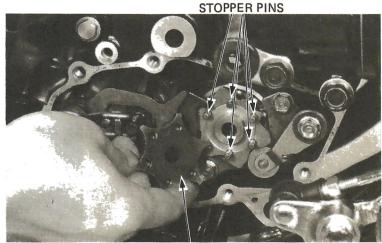


Install the drum stopper arm, bolt, and return spring. Tighten the bolt securely.



DRUM STOPPER ARM

Install the roller stopper pins and cam plate.

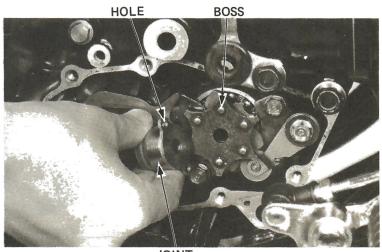


CAM PLATE

Install the joint, aligning the boss of the cam plate with the hole in the joint.

Tighten the socket bolt securely.

Rotate the gearshift spindle and check the linkage for smooth operations.



JOINT

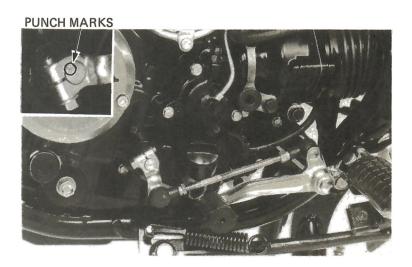


Install the gasket, dowel pins and cover. Install the gear position light switch. The spring pin should be aligned with the cut-out in the joint.

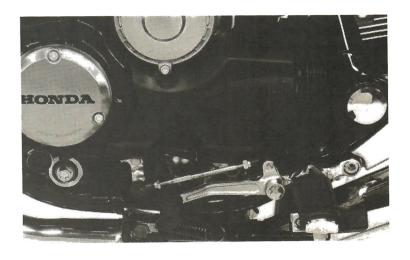


CUT-OUT SPRING PIN

Install the clutch slave cylinder (page 8-10).
Install the gearshift pedal, aligning the punch marks on the pedal and spindle.



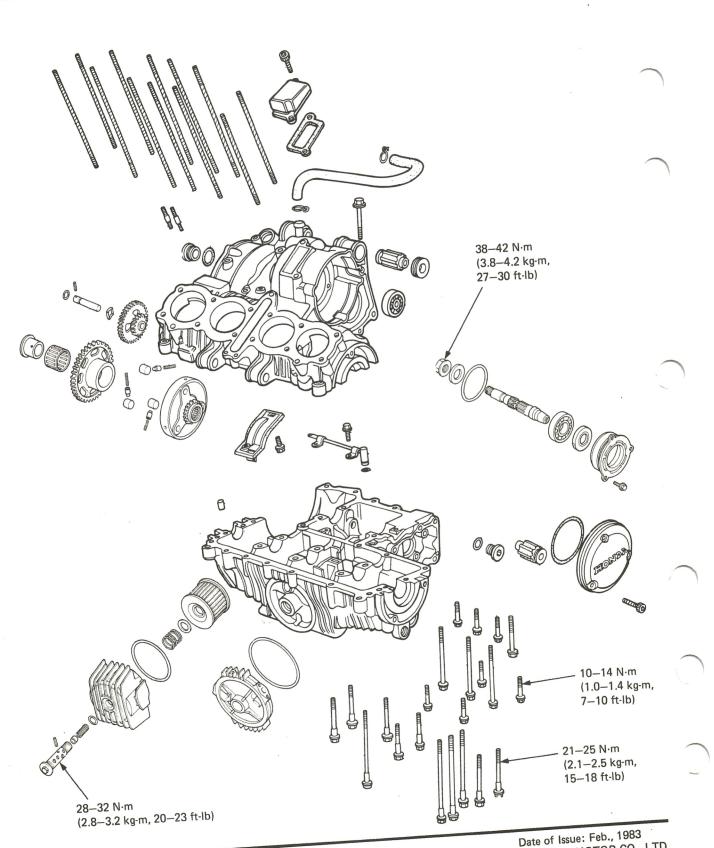
Install the left crankcase rear cover.





MEMO







10. CRANKCASE

SERVICE INFORMATION	10-1
CRANKCASE DISASSEMBLY	10-2
STARTER CLUTCH	10-4
CRANKCASE ASSEMBLY	10-9

SERVICE INFORMATION

GENERAL

• For crankshaft, connecting rod, starter clutch, clutch outer and transmission service the crankcase must be separated.

• The following parts must be removed before disassembling the crankcase.

	Oil non	Section 2
•	Oil pan	Section 2
•	Oil pump	Section 2
•	Clutch slave cylinder	Section 8
•	Gear shift linkage	Section 9
•	Alternator	Section 17
•	Cylinder head/cylinder/piston	Section 6, 7
•	Starter motor	Section 19
•	Pulse generator	Section 18

SPECIFICATIONS

·	STANDARD	SERVICE LIMIT
Drive gear O.D.	42.175-42.200 mm (1.6604-1.6614 in)	42.16 mm (1.660 in)
Collar O.D.	24.987-25.000 mm (0.9837-0.9843 in)	24.96 mm (0.983 in)

TORQUE VALUES

8 mm bolt:	21-25 N·m (2.1-2.5 kg-m, 15-18 ft-lb)
6 mm bolt:	10-14 N·m (1.0-1.4 kg·m, 7-10 ft-lb)
Oil filter case:	28-32 N·m (2.8-3.2 kg·m, 20-23 ft·lb)
Alternator shaft nut	38-42 N·m (3.8-4.2 kg·m, 27-30 ft-lb)

TOOLS	
Special Driver Driver Crankcase assembly pin	07949-3710000 07947-3710200 07973-ME50000
Common Driver Attachment, 20 mm I.D. Driver Attachment, 37 x 40 mm Pilot, 17 mm	07746-0020100 07746-0020400 07749-0010000 07746-0010200 07746-0040400



CRANKCASE DISASSEMBLY

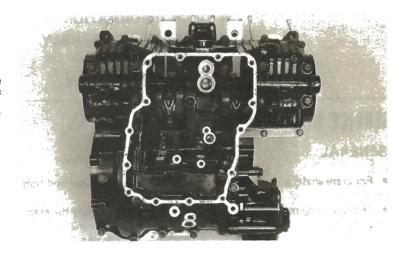
Remove the engine from the frame (Section 5). Shift transmission into neutral.

Loosen the output gear case bolts.

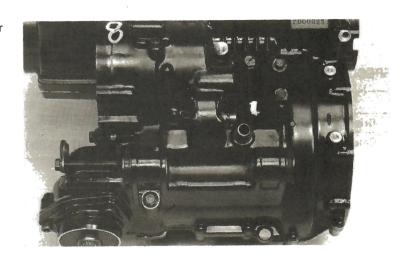
Remove the upper crankcase bolts. Refer to service Information General (page 10-11) for removal of necessary parts before disassembling the crankcase.

NOTE

Remove the bolts in two or more steps and in a crisscross pattern to prevent warpage.



Turn the engine upside down and remove the lower crankcase bolts.

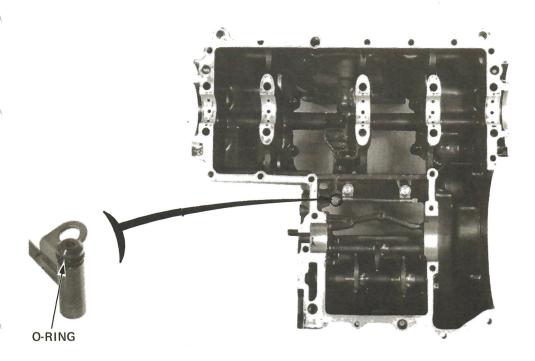


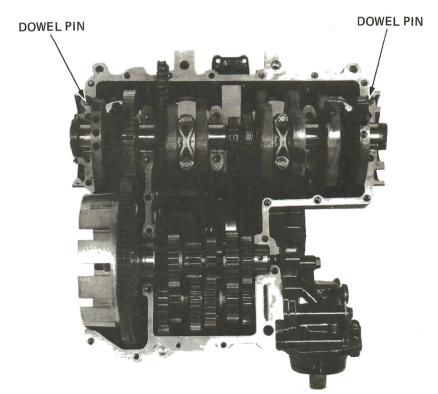


Separate the crankcase assembly.

CAUTION

Do not pry between the upper and lower cases.



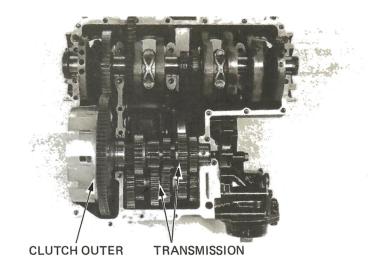




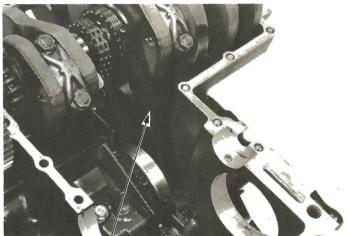
STARTER CLUTCH

REMOVAL

Remove the clutch outer with the mainshaft. Remove the rest of the transmission (page 11-4).

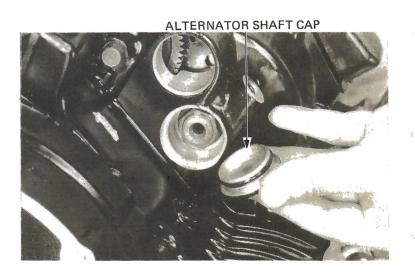


Remove the alternator chain slider.



ALTERNATOR CHAIN SLIDER

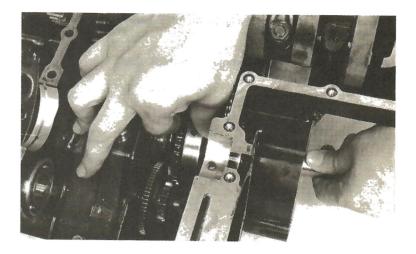
Remove the alternator shaft cap and the set nut.



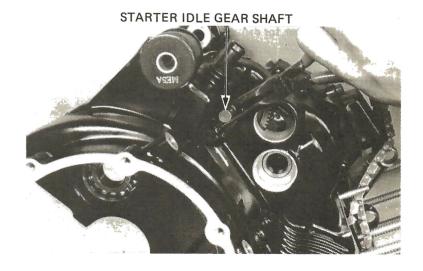


Remove the alternator shaft bearing holder bolts and holder.

Pull the alternator shaft out of the crankcase.



Pull the starter idle gear shaft out.



DISASSEMBLY/INSPECTION

Inspect the bearings for smooth operation.

Remove the shaft and bearing from the cover as a unit.

Inspect the bearing for smooth operation and replace if necessary.

Press the shaft out of the bearing.

Inspect the starter clutch case bearing for smooth operation and replace if necessary.

Press the bearing out using 07949-3710000.

Press a new bearing into the case using $0\overline{7}746-0040400$, 07746-0010200 and 07749-0010000 tools.





Remove the rollers and check them for excessive wear.

Clean all parts with non-flammable or high flash point solvent.



Inspect the drive gear for damage or excessive wear.

Measure the O.D..

SERVICE LIMIT: 42.16 mm (1.660 in)



Inspect the collar for excessive wear. Measure the O.D.

SERVICE LIMIT: 24.96 mm (0.983 in)





Check the starter idle gear and idle gear shaft for damage or excessive wear.



ASSEMBLY

Install the starter clutch shaft bearing with the special tools.

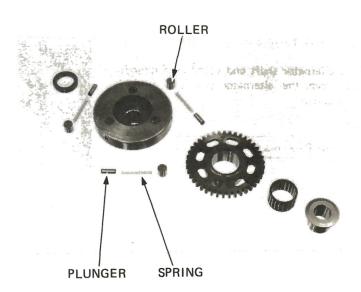
Press the shaft and bearing into the cover using the special tool.



ATTACHMENT, 20 MM I.D. 07746-0020400

Install the springs, plungers and rollers into the starter clutch.

Assemble the starter clutch, drive gear, needle bearing, collar, washer and starter clutch shaft.





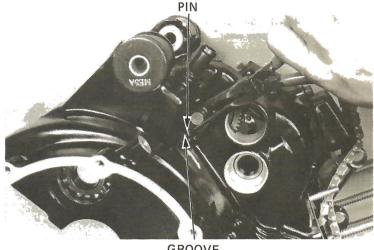
Set the starter idle gear and wave washer into the

Insert the alternator idle shaft through the idle gear and wave washer.

NOTE

When inserting the idle gear shaft, align the pin of the shaft with the groove on the crankcase.

Install the alternator shaft bearing holder.



GROOVE

NOTE

Make sure the O-ring and oil seal are positioned correctly.

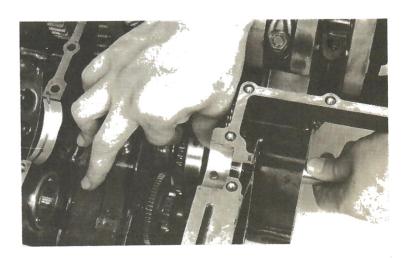


Set the starter clutch into the crankcase.

Drive the alternator shaft and cover with 07947-3710200 from the alternator case side through the starter clutch.

NOTE

07947-3710200 is a special tool.





Install the set nut on the alternator shaft. Install the alternator rotor (page 17-7), and tighten the set nut while holding the rotor.

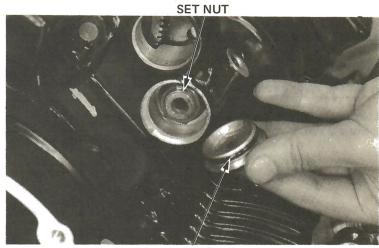
TORQUE: 38-42 N·m

(3.8-4.2 kg-m, 27-30 ft-lb)

Make sure the O-ring is positioned correctly and install the cap.

Apply a locking agent to the threads and install the chain slider.

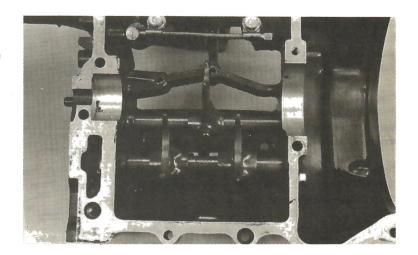
Install the transmission and clutch outer.



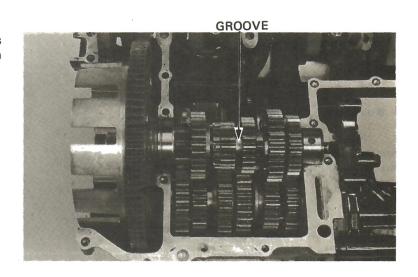
O-RING

CRANKCASE ASSEMBLY

If the gearshift, shift fork and shift drum are installed in the lower crankcase, shift the linkage into the neutral position for easier assembly.



Apply molybdenum disulfide grease to the grooves of M2/3, C5, C6 gears and the crankshaft main bearings.



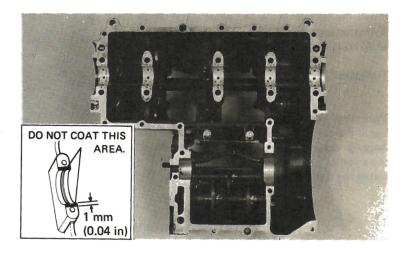


Clean the crankcase mating surfaces thoroughly and apply liquid sealant to both of the mating surfaces.

CAUTION

Do not apply sealant near the main bearings.

Loosen the output gear case mount bolts and raise the case 2 mm.



Assemble the crankcase halves, aligning the shift fork claws with the grooves in M2, M3, C5, and C6 gears. Also align the alternator chain slider and cam chain slider with the grooves in the lower case.

Place the special assembly pins, bolt holes first through the very front outer holes of the upper case. Thread 6×20 mm bolts into the pins from the lower case side.

Torque the assembly pins/bolts to 10-14 N·m (1.0-1.4 kg-m, 7-10 ft-lb). This will precisely align the crankcase halves with each other.

Apply molybdenum disulfide grease to the threads and flanges of the ten, 8 mm bolts. These are the crankshaft main bearing bolts.

Install new copper washers on the crankcase bolts with the " \triangle " mark.

Torque the lower crankcase bolts to the specified torque values in the sequence shown.

TORQUE:

8 mm bolt 21-25 N·m

(2.1-2.5 kg-m, 15-18 ft-lb)

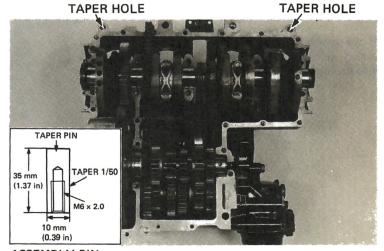
6 mm bolt 10-14 N·m

(1.0-1.4 kg-m, 7-10 ft-lb)

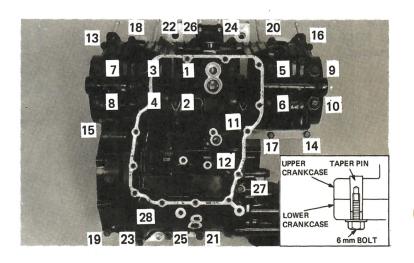
Remove the 6×20 mm bolts from the special assembly pins and remove the pins from the crankcase.

CAUTION

Be careful not to damage the crankcases if the pins must be "tapped" out.



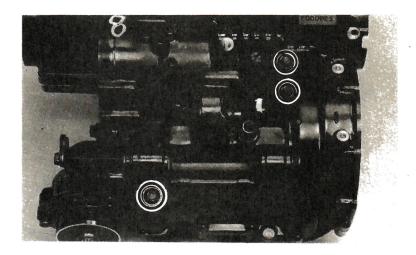
ASSEMBLY PIN 07973-ME50000



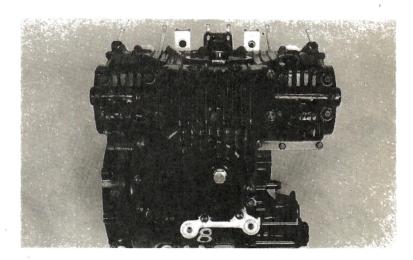


Tighten the upper crankcase bolts to the specified torque values.

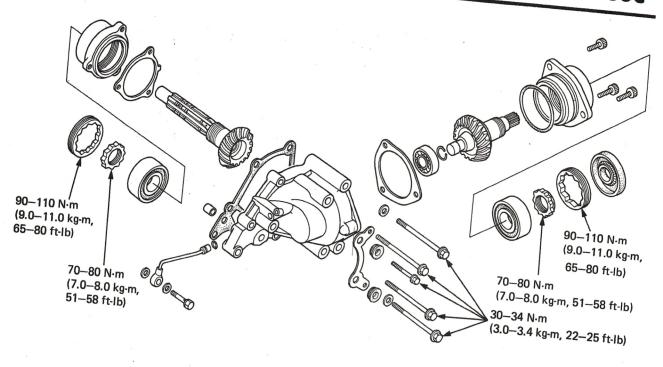
Tighten the out put gear case mount bolt.

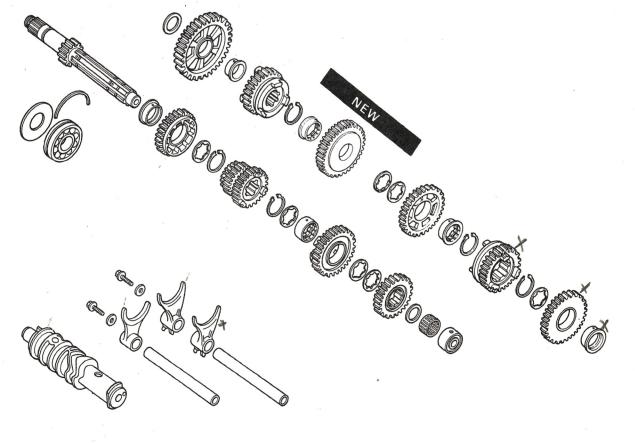


Install the oil pump. Align the sprocket with the oil pump chain and tighten the shoulder bolts. Install a new oil pan gasket and oil pan.











11. TRANSMISSION

SERVICE INFORMATION TROUBLESHOOTING TRANSMISSION DISASSEMBLY COUNTERSHAFT REMOVAL COUNTERSHAFT INSTALLATION	11-1 11-2 11-3 11-6 11-8	OUTPUT DRIVEN GEAR INSTALLATION GEAR TOOTH CONTACT PATTERN CHECK TRANSMISSION ASSEMBLY SHIFT FORK AND SHIFT DRUM	11–13 11–14 11–16 11–20
OUTPUT DRIVEN GEAR REMOVAL		SHIFT FORK AND SHIFT DRUM	11–20

SERVICE INFORMATION

GENERAL

- The gearshaft linkage can be serviced with the engine in the frame (Section 9).
- For internal transmission repairs, the crankcase must be separated (Section 10).
- Replace the countershaft and output driven gear as a set.
- When using the lock nut wrench, use a deflecting beam type torque wrench 35–51 cm (14–20 inches) long. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the lock nut. The specification given is the actual torque applied to the lock nut, not the reading on the torque wrench when used with the lock nut wrench. The torque wrench scale reading is given with the actual torque specification.

SPECIFICATIONS

			STANDARD	SERVICE LIMIT
Transmission	Backlash	Low, 2nd, 3rd	0.044-0.133 mm (0.0017-0.0052 in)	0.20 mm (0.008 in)
Transmission	Dacklasii	4th	0.034-0.102 mm (0.0013-0.0040 in)	0.15 mm (0.006 in)
		5th, 6th	0.046-0.140 mm (0.0018-0.0055 in)	0.18 mm (0.007 in)
	Gear I.D.	M5, M6	28.020-28.041 mm (1.1031-1.1040 in)	28.06 mm (1.105 in)
		C1	24.020-2.4041 mm (0.9457-0.9465 in)	24.06 mm (0.947 in)
		C2, C3, C4	28.020-28.041 mm (1.1031-1.1040 in)	28.06 mm (1.105 in)
	Gear bushing O.D.	M5, C4	27.979-28.000 mm (1.1015-1.1024 in)	27.96 mm (1.101 in)
		M6	27.979-28.000 mm (1.1015-1.1024 in)	27.96 mm (1.101 in)
		C1 🚜	23.984-24.005 mm (0.9443-0.9451 in)	23.97 mm (0.944 in)
		C2, C3	27.979-28.000 mm (1.1015-1.1024 in)	27.96 mm (1.101 in)
	Gear bushing I.D.	M5, C4	24.985-25.006 mm (0.9837-0.9845 in)	25.04 mm (0.986 in)
		C1	20.000-20.021 mm (0.7874-0.7882 in)	20.04 mm (0.789 in)
	Mainshaft O.D.	(M5)	24.959-24.980 mm (0.9826-0.9835 in)	24.80 mm (0.980 in)
	Countershaft O.D.	C1	19.980-19.993 mm (0.7866-0.7871 in)	19.93 mm (0.785 in)
		C4	24.959-24.980 mm (0.9826-0.9835 in)	24.90 mm (0.980 in)
	Gear-to-bushing or shaft clearance	M5, M6, C4 gear to bushing	0.020-0.062 mm (0.0008-0.0024 in)	0.08 mm (0.003 in)
		M5, C4 bushing to shaft	0.005-0.047 mm (0.0002-0.0019 in)	0.07 mm (0.003 in)
		C1 gear to bushing	0.015-0.057 mm (0.0006-0.0022 in)	0.08 mm (0.003 in)
		C1 bushing to shaft	0.007-0.041 mm (0.0003-0.0016 in)	0.06 mm (0.002 in)
		C2, C3 gear to bushing	0.020-0.062 mm (0.0008-0.0024 in)	0.08 mm (0.003 in)



Apply engine oil to the bolt

TORQUE VALUES

Output gearcase:

Driven gear bearing holder:

Countershaft bearing holder:

Countershaft bearing lock nut

Driven gear bearing lock nut

outer:

inner: outer: inner:

30-34 N·m (3.0-4.0 kg-m, 22-25 ft-lb)

30-34 N·m (3.0-4.0 kg-m, 22-25 ft-lb)

30-34 N·m (3.0-4.0 kg-m, 22-25 ft-lb) 90-110 N·m (9.0-11.0 kg-m, 65-80 ft-lb)-

70-80 N.m (7.0-8.0 kg-m, 51-58 ft-lb)-

90-110 N·m (9.0-11.0 kg·m, 65-80 ft-lb)-70-80 N·m (7.0-8.0 kg-m, 51-58 ft-lb)-

Apply engine oil to the

threads

threads

TOOLS

•			
S	na	CI	21
v	20	C.	a

Driver Locknut wrench 28/60 mm Lock nut wrench, 30/64 mm Shaft holder Ring gear dis/assembly tool Attachment Bearing remover, 20 mm Remover handle Remover weight Driver

Common

Driver Attachment, 52 x 55 mm Driver outer, 42 x 47 mm Pilot 15 mm Driver Driver outer, 25 mm I.D. Attachment, 30 mm I.D. Pilot, 25 mm Pilot, 30 mm Attachment, 37 x 40 mm

07949-3710000 07916-ME50000

07916-MB00000 07924-ME50000 07965-3710100 07945-3330300 07936-3710600 07936-3710100 07936-3710200 07947-3710200

07749-0010000

07746-0010400 07746-0010300 07746-0040300 07746-0030100 07746-0030200 07746-0030300 07746-0040600 07746-0040700

07746-0010200

or Driver 07945-3710200

TROUBLESHOOTING

Hard to shift

- 1. Clutch slave cylinder sticking
- 2. Shift fork bent
- 3. Shift shaft bent
- 4. Shift claw bent
- 5. Shift drum cam grooves damaged

Transmission jumps out of gear

- 1. Gear dogs worn
- 2. Shift shaft bent
- 3. Shift drum stopper broken
- 4. Shift forks bent



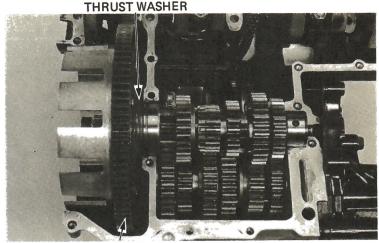
TRANSMISSION DISASSEMBLY

Separate the crankcase (Section 11).

Remove the dowel pins from the crankcase.

Remove the clutch outer and thrust washer with the mainshaft.

Remove the clutch outer from the mainshaft.

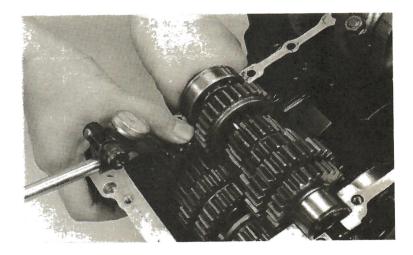


CLUTCH OUTER

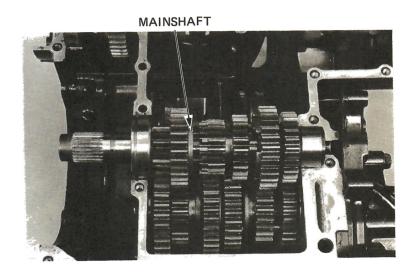
Reinstall the mainshaft and inspect the backlash of each gear.

SERVICE LIMIT:

Low, 2nd, 3rd: 0.20 mm (0.008 in) 4th: 0.15 mm (0.006 in) 5th, 6th: 0.18 mm (0.007 in)

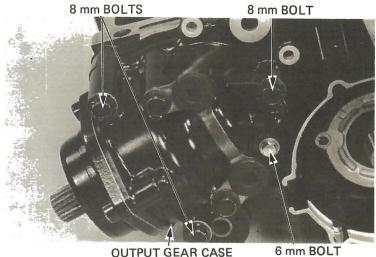


Remove the mainshaft.



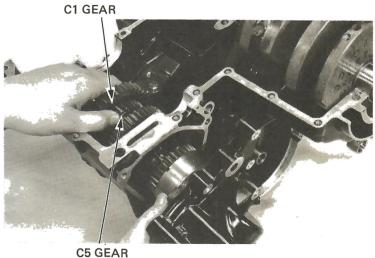


Remove the three 8 mm bolts and 6 mm bolt from the output gear case.



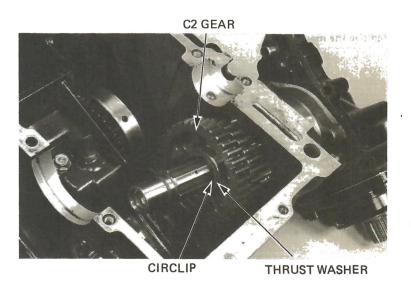
OUTPUT GEAR CASE

Pull the countershaft out, and remove the C1 and C5 gears, bushing and thrust washer.



Remove the circlip and pull the C2 gear, spline collar and thrust washer off the shaft.

Remove the countershaft with the remaining gears out of the crankcase.





TRANSMISSION INSPECTION

Check the gear dogs, dog holes and teeth for excessive or abnormal wear, or evidence of insufficient lubrication.

Measure the I.D. of each gear.

SERVICE LIMITS:

M5 gear: 28.06 mm (1.105 in)
M6 gear: 28.06 mm (1.105 in)
C1 gear: 24.06 mm (0.947 in)
C2 gear: 28.06 mm (1.105 in)
C3 gear: 28.06 mm (1.105 in)
C4 gear: 28.06 mm (1.105 in)



Measure the I.D. and O.D. of the gear bushings.

SERVICE LIMITS:

M5 O.D.: 27.96 mm (1.101 in)
M6 O.D.: 27.96 mm (1.101 in)
C1 O.D.: 23.97 mm (0.944 in)
C2 O.D.: 27.96 mm (1.101 in)
C3 O.D.: 27.96 mm (1.101 in)
C4 O.D.: 27.96 mm (1.101 in)
M5 I.D.: 25.04 mm (0.986 in)
C1 I.D.: 20.04 mm (0.789 in)
C4 I.D.: 25.04 mm (0.986 in)



Measure the O.D. of the mainshaft and countershaft.

SERVICE LIMITS:

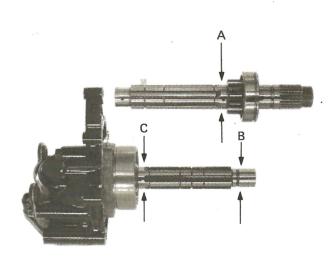
A (at M5 bushing): 24.90 mm (0.980 in)
B (at C1 bushing): 19.93 mm (0.785 in)
C (at C4 bushing): 24.90 mm (0.980 in)

Calculate the clearance between each gear and gear shaft or bushing.

SERVICE LIMITS:

M5, 6 gear to M5, 6 bushing: 0.08 mm (0.003 in)
M5 bushing to M5 shaft: 0.07 mm (0.003 in)
M6 gear to M6 bushing: 0.08 mm (0.003 in)
C1 gear to C1 bushing: 0.08 mm (0.003 in)
C1 bushing to C1 shaft: 0.06 mm (0.002 in)
C2 gear to C2 bushing: 0.008 mm (0.003 in)
C3 gear to C3 bushing: 0.008 mm (0.003 in)
C4 gear to C4 bushing: 0.008 mm (0.003 in)

C4 bushing to C4 shaft: 0.007 mm (0.003 in)





COUNTERSHAFT REMOVAL

Place the output gear case in a vise with soft jaws, being careful not to distort it.

Place a holder tool on the output driven gear shaft, wedging it to lock the shaft.

Pry or drill the staked edge of lock nut flange up.

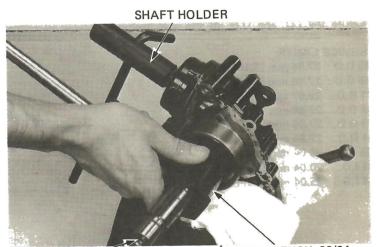
NOTE

Be careful that metal particles do not enter the bearing.



SHAFT HOLDER 07924-ME50000

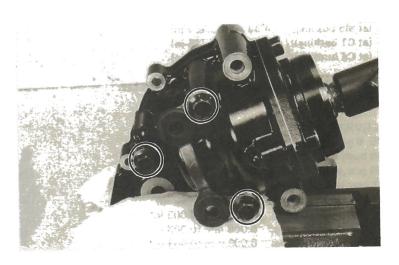
Remove the bearing inner race lock nut and discard the nut.



COUNTERSHAFT LOCK NUT WRENCH, 30/64 mm 07916-MB00000

Remove the countershaft bearing holder bolts.

Remove the countershaft holder and shim.



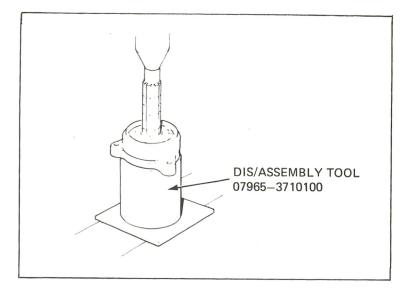


Place the countershaft/holder and a disassembly tool in a press.

Press the countershaft out of the bearing holder.

NOTE

Remove the center guide from the dis/assembly tool before using it.



COUNTERSHAFT BEARING REPLACE-MENT

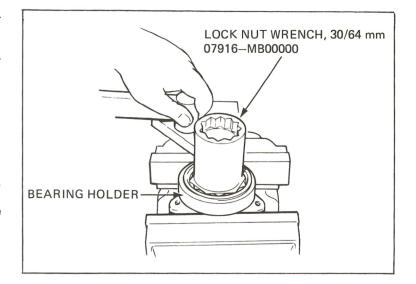
Place the bearing holder in a vise with soft jaws or a shop towel.

NOTE

Be careful not to damage the bearing holder, especially the surface that fits against the crankcase.

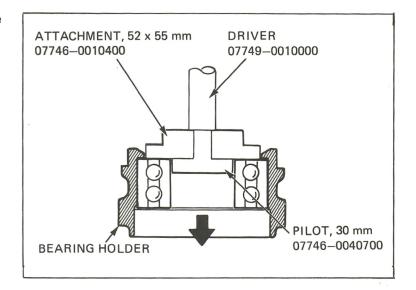
Untake the outer race lock nut with a punch.

Remove the bearing outer race lock nut with the special tool.



Place the bearing holder in a press and remove the bearing.

Press in a new bearing.





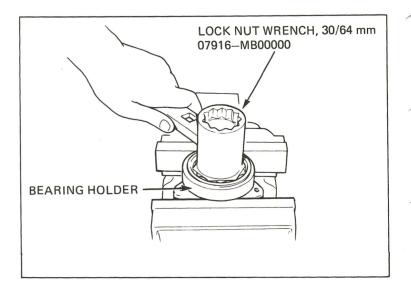
Place the bearing holder in a vise with soft jaws and, apply engine oil to the bearing holder and lock nut threads. Tighten a new outer race lock nut to the specified torque value.

TORQUE: 90-110 N-m

(9.0-11.0 kg-m, 65-80 ft-lb)

Torque wrench scale reading: 80-100 N·m (8.0-10.0 kg-m, 58-72 ft-lb)

Then stake the new nut.



COUNTERSHAFT INSTALLATION

NOTE

The countershaft and driven gear must be replaced as a set if they or the gear case or bearing require replacement.

Place the bearing holder in a press and support the inner race with the special tool.

Place the countershaft into the holder and press it in.

NOTE

Place the pilot's threaded end into the countershaft and be sure the attachment is aligned with the bearing inner race.

Place the adjustment shim over the bearing holder.

NOTE

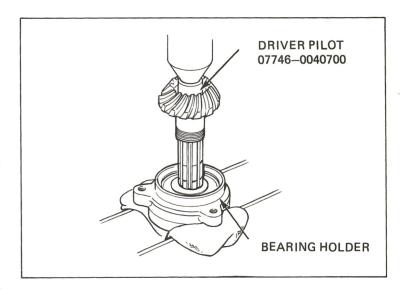
If the countershaft/driven gear case are replaced a new adjustment shim must be selected (page 11-15, Backlash Inspection).

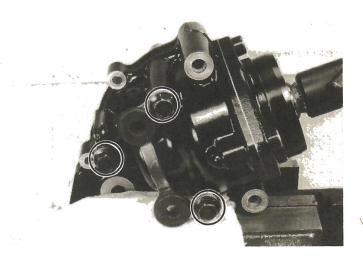
Apply engine oil to the bearings and gears.

Place the countershaft/bearing holder and correct shim (page 11-15) into the output gear case. Install the bolts.

Apply oil to the threads of the mounting bolts and tighten them to the specified torque.

TORQUE: 30-34 N·m (3.0-3.4 kg-m, 22-25 ft-lb)







Place the output gear case in a vise with soft jaws, being careful not to distort it.

Set a shaft holder on the output driven gear shaft wedging it, to lock the shaft.

Apply engine oil to the countershaft and the new lock nut threads,

Tighten the lock nut to specified torque.

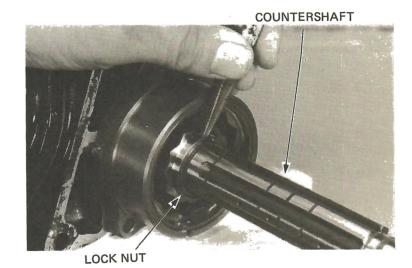
TORQUE: 70-80 N·m (7.0-8.0 kg-m, 50-80 ft-lb)

Torque wrench scale reading: 64-73 N·m (6.4-7.3 kg-m, 46-53 ft-lb)



LOCK NUT WRENCH, 30/64 mm 07916-MB00000

Stake the lock nut.



OUTPUT DRIVENGEAR REMOVAL

Remove the output driven gear oil seal from the output gear case.

Place the output gear case into a vise, clamping it at the shift shaft spindle boss.



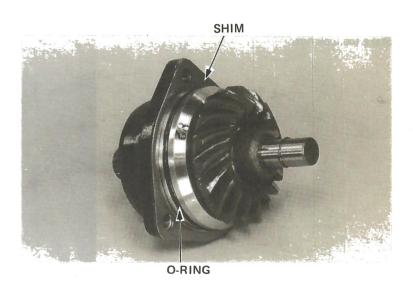


Unstake and remove the output driven gear bearing inner race lock nut.

Remove the driven gear bearing holder mounting bolts and remove the shim, gear and holder from the case



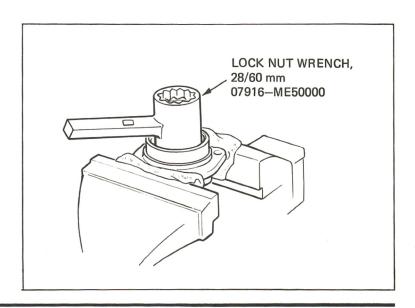
Remove the shim and O-ring from the bearing holder.



OUTPUT DRIVEN GEAR BEARING REPLACEMENT

Place the output driven gear bearing holder into a vise with soft jaws. Unstake and remove the output driven gear bearing outer race lock nut from the holder.

Press the output driven gear from the holder.

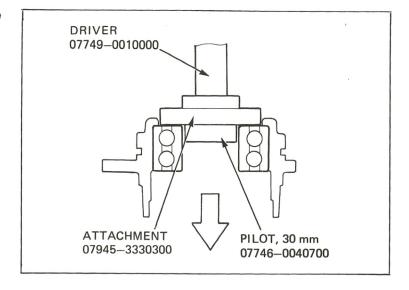




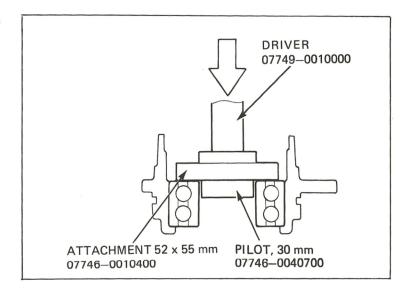
Place the bearing holder in a press and press the bearing out.

NOTE

Be careful not to damage the bearing holder gear case mating surface.



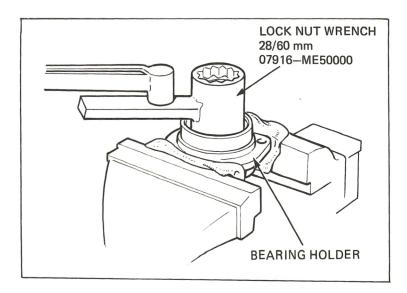
Press in a new bearing and make sure it rotates freely.



Place the bearing holder into a vise with soft jaws. Apply engine oil to the bearing holder and the new lock nut threads. Tighten the new lock nut to the specified torque value.

TORQUE: 90-110 N·m (9.0-11.0 kg·m, 65-80 ft-lb)

Torque wrench scale reading: 80–100 N·m (8.0–10.0 kg-m, 58–73 ft-lb)



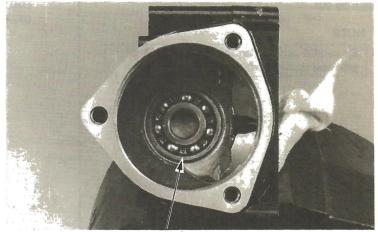


OUTPUT DRIVEN GEAR CASE BEARING REPLACEMENT

Heat the output gear case around the bearing to 80°C (176°F).

CAUTION

Always wear gloves when handling a heated gear case.



BEARING

Remove the bearing by tapping the case behind it with a plastic hammer.

Drive a new bearing into the output gear case.



DRIVER

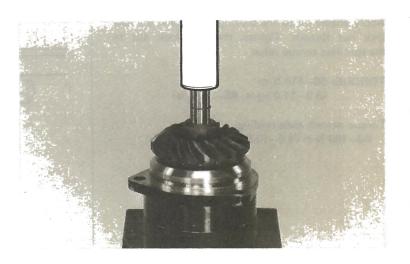
ATTACHMENT, 37 x 40 mm 07746-0010200

PILOT, 15 mm 07746-0040300

OUTPUT DRIVEN GEAR INSTALLATION

Apply engine oil to the threads of a lock nut and driven gear shaft. Install the lock nut and tighten by hand.

Place the output driven gear bearing holder into a press. Support the inner race with the special tool. Then press in the output driven gear.



Date of Issue: Sept., 1982



Install the correct shim and new O-ring.

Attach the bearing holder onto the gear case.

Apply engine oil to the bolt threads and tighten the bolts to the specified torque.

TORQUE: 30-34 N·m (3.0-3.4 kg-m, 22-25 ft-lb)

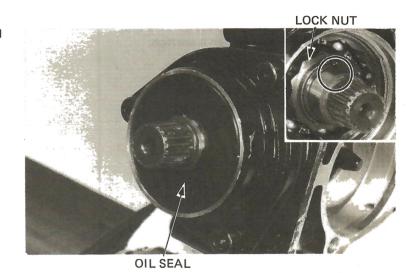
Tighten the lock nut to specified torque.

TORQUE: 70-80 N·m (7.0-8.0 kg·m, 50-58 ft-lb)

Torque wrench scale reading: 64—73 N·m (6.4—7.3 kg·m, 46—53 ft-lb)



Stake the new lock nut and install a new oil seal with special tool 07947-3710200.



GEAR TOOTH CONTACT PATTERN CHECK

Remove the drive and driven gears (page 11-9, 11-10).

Apply Prussian Blue to the driven gear teeth.

Install the drive and driven gears with the standard shims.

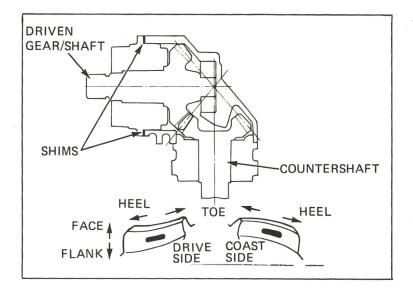
Rotate the drive gear several times in the normal direction of rotation.

Check the gear tooth contact pattern after removing the drive gear.

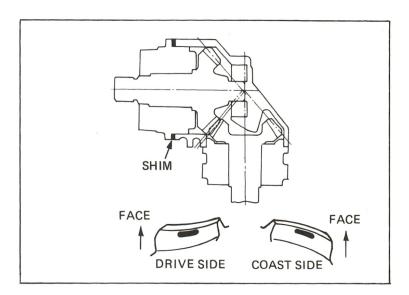




Contact is normal if Prussian Blue in transfered to the approximate center of each tooth and slightly to the side.



If the pattern is not correct, remove and replace the driven gear adjustment shim. Replace the shim with a thinner one if the contact pattern is too high.

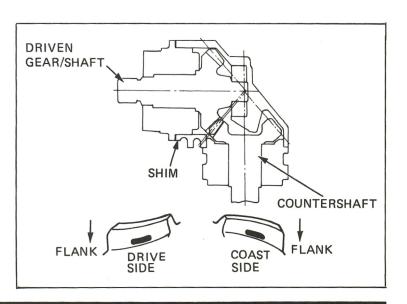


Replace the driven gear adjustment shim with a thicker one if contact is too low.

The pattern will shift about 1.5–2.0 mm (0.06–0.08 in) when the thickness of the shim is changed by 0.10 mm (0.04 in).

OUTPUT DRIVEN GEAR ADJUSTMENT SHIM:

- 1: 0.20 mm (0.008 in)
- 2: 0.25 mm (0.010 in)
- 3: 0.30 mm (0.012 in)
- 4: 0.35 mm (0.014 in)
- 5: 0.40 mm (0.016 in)
- 6: 0.45 mm (0.018 in)
- 7: 0.50 mm (0.020 in)





BACKLASH INSPECTION

Place the output gear case in a vise with soft jaws or a shop towel.

Set a horizontal type dial indicator on the countershaft as shown.

Hold the driven gear with special tool and rotate the countershaft until gear slack is taken up.

Turn the countershaft back and forth to read backlash,

STANDARD: 0.04-0.09 mm

(0.002-0.004 in)

SERVICE LIMIT: 0.20 mm (0.008 in)



Remove the dial indicator. Turn the countershaft 120° and measure backlash. Do this once more. Compare the difference of the three measurements.

DIFFERENCE OF MEASUREMENT SERVICE LIMIT: 0.10 mm (0.004 in)

If the difference in measurements exceeds the service limit, it indicates that the bearing is not installed squarely. Inspect the bearings and reinstall if necessary.

If backlash is excessive, replace the countershaft gear adjustment with a thinner one.

If backlash is too small, replace the countershaft shim with a thiker one.

Backlash is changed by about 0.06-0.07 mm (0.002-0.003 in) when the thickness of the shim is changed by 0.10 mm (0.004 in).

COUNTERSHAFT/OUTPUT DRIVE GEAR ADJUSTMENT SHIMS:

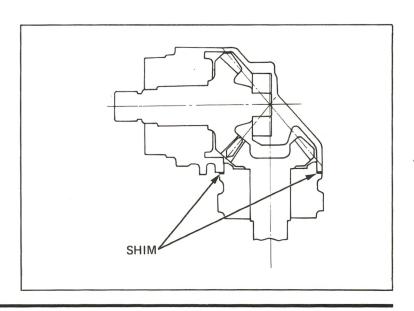
1: 0.40 mm (0.016 in)

2: 0.45 mm (0.018 in)

3: 0.50 mm (0.020 in)

4: 0.55 mm (0.022 in)

5: 0.60 mm (0.024 in)



TRANSMISSION

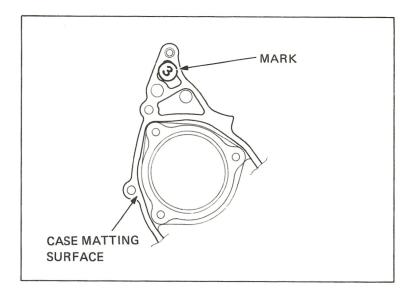


When the shim is replaced, remark the shim number on the output gear case as shown.

Clean the head gasket surfaces of any gasket mate-

NOTE

Select the countershaft thrust washer thickness using the mark on the case (see page 11-19).



COUNTER SHAFT BEARING REMOVAL

Remove the counter shaft bearing use below tools.

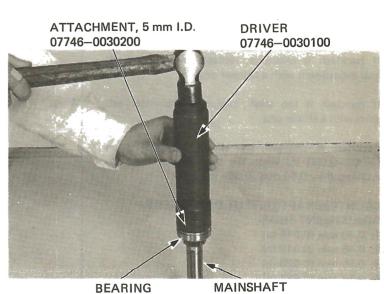
TOOLS, REMOVAL:

Bearing remover, 20 mm 07936-3710600 Remover handle 07936-3710100 Remover weight 07936-3710200

TRANSMISSION ASSEMBLY

MAINSHAFT ASSEMBLY

Drive the mainshaft bearing onto the mainshaft.

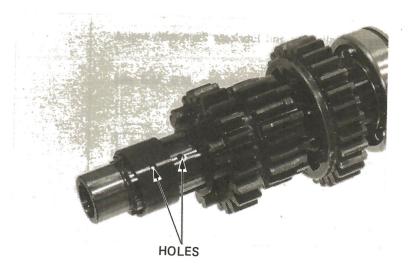


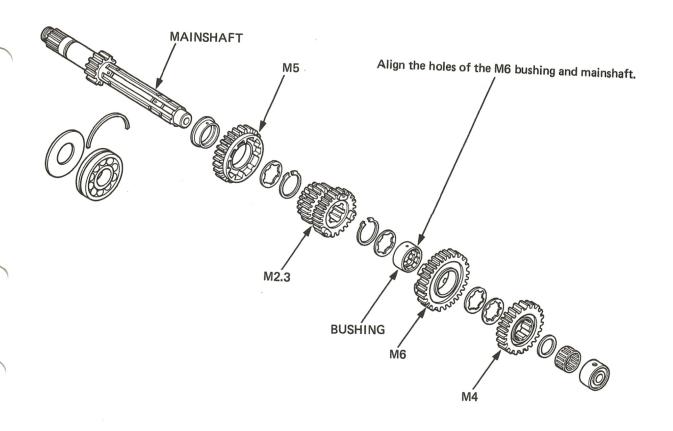


Clean all parts and lubricate them with clean oil.

NOTE

- Check the gears for freedom of movement or rotation on the shaft.
- Check that the snap rings are seated properly in the grooves.







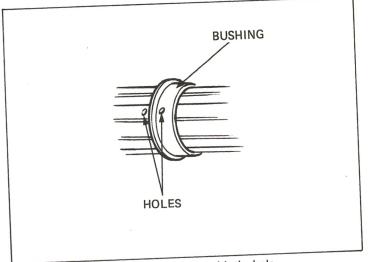
COUNTERSHAFT ASSEMBLY

Clean the all parts and lubricate them with engine oil.

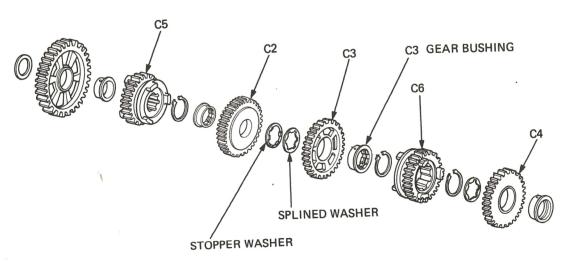
Install the thrust washers, circlips, M-5, M-6 and M-3 gears and bushings.

NOTE

Check that the circlips are properly seated in the grooves.



Align the hole in the C3 gear bushing with the hole in the countershaft.



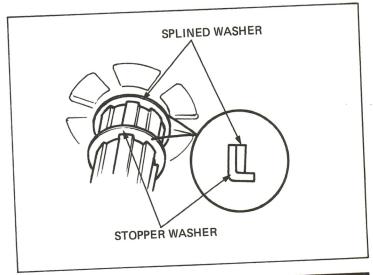
Install the stopper washer while aligning the tab of the stopper washer with the groove in the splined collar.

COUNTERSHAFT BEARING (CRANK-CASE) INSTALLATION

Install the bearing with below Tools.

INSTALLATION:

Attachment, 42 x 47 mm 07746-0010300 Driver 07949-3710000



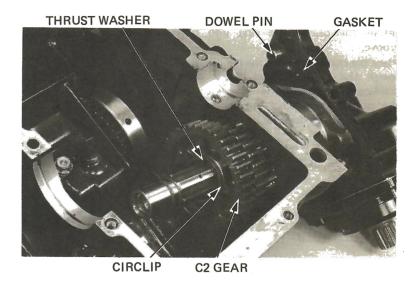


Install a new gasket and the dowel pin.

Insert the countershaft assembly into the upper crankcase.

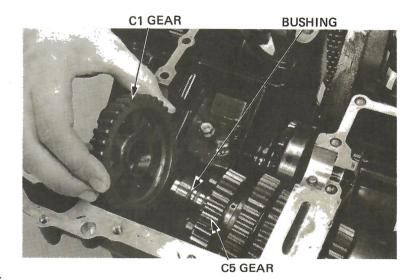
Install the C2 bushing, aligning the hole in the bushing and the oil hole in the countershaft.

Install the thrust washer and circlip.



Install the C5 gear.

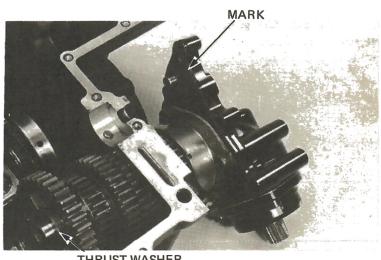
Install the C1 gear bushing by facing the flange twoard the C5 gear and C1 gear.



Select the thrust washer and install onto the countershaft

THRUST WASHR SELECTION

OUTPUT GEAR CASE MARK	THRUST WASHER	THRUST WASHER
	THICKNESS	O.D.
1	1.0 mm (0.039 in)	30 mm (1.18 in)
2	1.0 mm (0.039 in)	30 mm (1.18 in)
3	0.9 mm (0.035 in)	31 mm (1.22 in)
4	0.9 mm (0.035 in)	(31 mm (1.22 in)
5	0,8 mm (0.031 in)	33 mm (1.29 in)



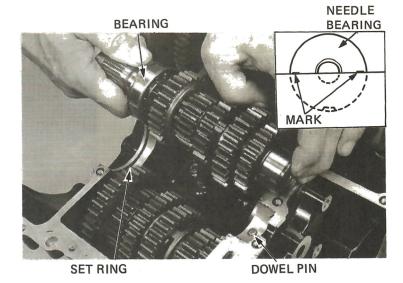
THRUST WASHER



Install the bearing set ring into the crankcaşe groove.

Place the clutch outer on the mainshaft.

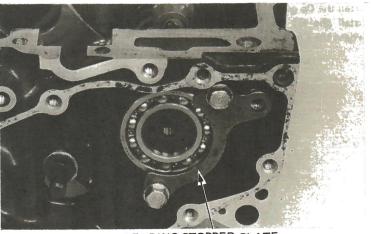
Install the mainshaft and clutch outer into the crankcase, aligning the set ring with the groove of the mainshaft bearing and dowel pin with the hole in the needle bearing.



SHIFT FORK AND SHIFT DRUM

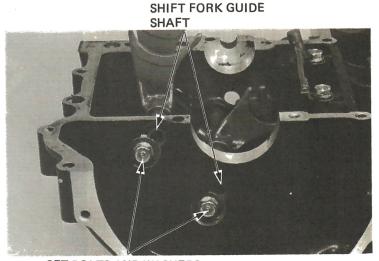
REMOVAL

Remove the bearing stopper plates.



BEARING STOPPER PLATE

Remove the shift fork guide shaft set bolts and washers.



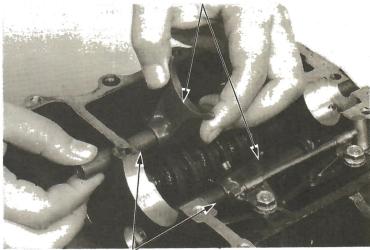
SET BOLTS AND WASHERS



Hold the shift forks and pull out the shift fork shafts.

Remove the gear shift drum.





SHAFTS

GEAR SHIFT DRUM AND SHIFT FORK INSPECTION

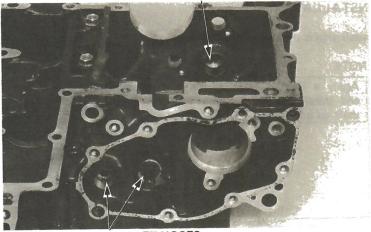
Inspect the shift drum end for scoring, scratches, or evidence of insufficient lubrication.

Check the shift drum grooves for damage.



Inspect the shift drum hole and shift fork shaft hole for scoring or scratches. Smooth out any irregularities.





SHIFT FORK SHAFT HOCES



Measure the shift fork shaft O.D. where the shift forks move on the shaft.

Check for scratches, scoring or evidence of insufficient lubrication.

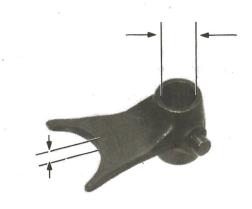
SERVICE LIMIT: 11.90 mm (0.469 in)



Measure the right and left shift fork I.D. Measure the shift fork claw thickness.

SERVICE LIMITS:

I.D. (right and left fork): 12.04 mm (0.474 in) CLAW THICKNESS: 4.6 mm (0.18 in)

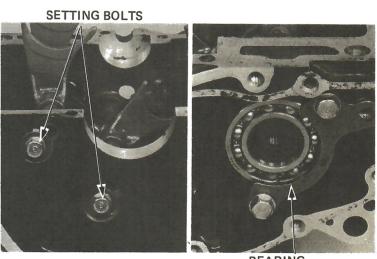


INSTALLATION

Installation is the reverse order of removal.

NOTE

Apply a locking agent to the bolt threads and install the stopper plate and shift fork shaft set bolts.



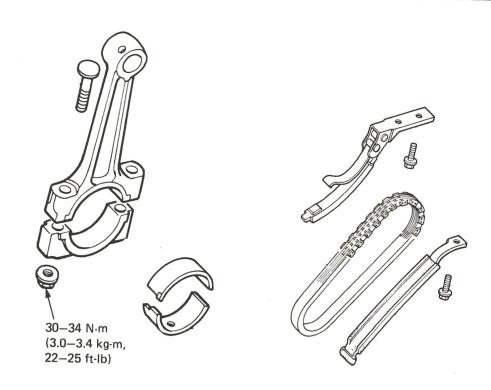
BEARING SET PLATE

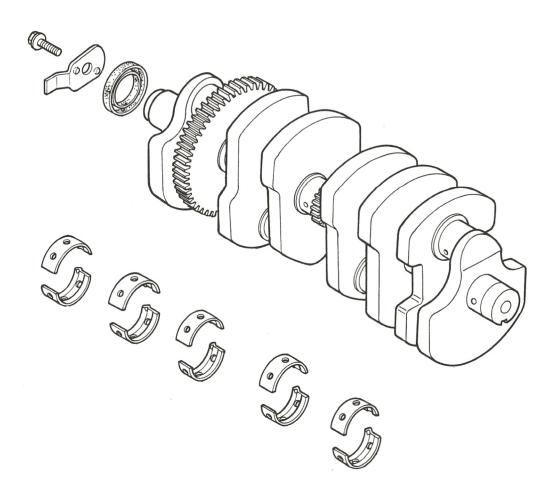
Date of Issue: Feb., 1983 © HONDA MOTOR CO., LTD.



MEMO









12. CRANKSHAFT

SERVICE INFORMATION	12–1
TROUBLESHOOTING	12–1
CONNECTING ROD REMOVAL	12–2
BEARING INSPECTION	12–4
BEARING SELECTION	12–6
CONNECTING ROD INSTALLATION	12–8
CRANKSHAFT INSTALLATION	12–9

SERVICE INFORMATION

GENERAL

All bearing inserts are a select fit and are identified by color codes. Select replacement bearings from the code tables. After
installing new bearings, recheck them with plastigauge to verify clearance. Apply molybdenum disulfied grease to the main
journals and crankpins during assembly.

• The crankcase assembly must be separated (section 10) to service the crankshaft.

SPECIFICATIONS

		STANDARD	SERVICE LIMIT
Crankshaft	Connecting rod big end side clearance	0.05-0.20 mm (0.002-0.0079 in)	0.3 mm (0.01 in)
	Runout	_	0.05 mm (0.002 in)
	Crankpin oil clearance	0.024-0.057 mm (0.0009-0.0022 in)	0.07 mm (0.003 in)
	Main journal oil clearance	0.019-0.043 mm (0.0007-0.0017 in)	0.06 mm (0.002 in)
Cam chain	Length	323.05-324.05 mm (12.750-12.758 in)	327.0 mm (12.87 in)
Alternator chain	Length	136.50-136.70 mm (5.374-5.382 in)	137.8 mm (5.43 in)

TORQUE VALUES

Crankpin Crankshaft 30-34 N·m (3.0-3.4 kg·m, 22-25 ft·lb) 21-25 N·m (2.2-2.5 kg·m, 15-18 ft·lb)

TROUBLESHOOTING

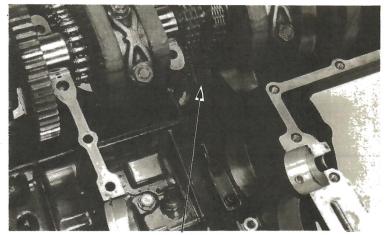
Excessive noise

- Worn main journal bearing
- Worn crank pin bearing



CONNECTING ROD REMOVAL

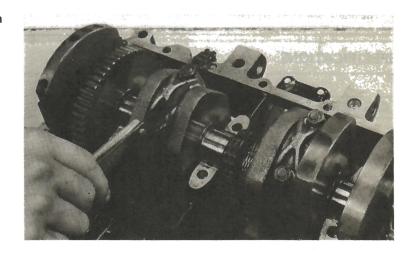
Separate the crankcase assembly (Section 10). Remove the transmission (Section 11). Remove the chain slider.



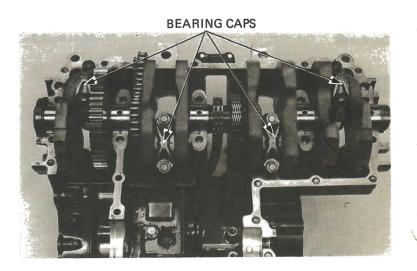
CHAIN SLIDER

Check the connecting rod side clearance with a feeler gauge.

SERVICE LIMIT: 0.3 mm (0.01 in)

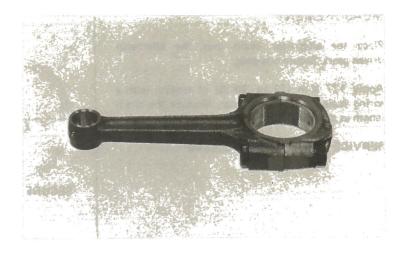


Remove the bearing cap nuts, bearing caps and connecting rods.





Mark the rods, bearings and bearing caps to indicate their cylinder position for correct reassembly.

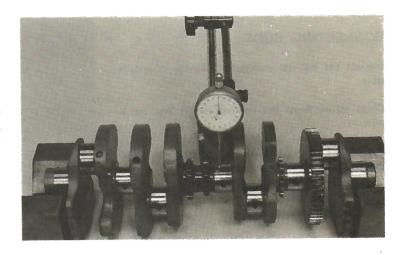


INSPECTION CRANKSHAFT RUN-OUT

Remove the cam shaft and alternator chains. Place the crankshaft on a stand or V-blocks.

Set a dial indicator on the center main journal of the crankshaft. Rotate the crankshaft two revolutions and read run-out at the center journal. Actual run-out is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.05 mm (0.002 in)

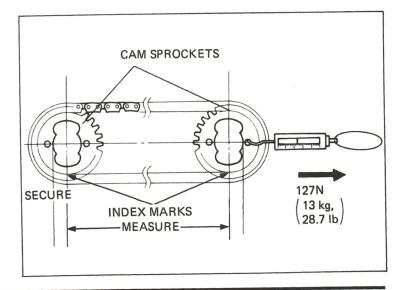


CAM CHAIN LENGTH MEASUREMENT

Place the cam chain over the intake and exhaust cam shaft sprockets with the bolt holes and punch marks positioned as shown. Secure one sprocket. Apply 127N (13 kg, 29 lb) of tension with a spring scale to the other sprocket.

Measure the chain length between the index marks on the sprockets.

SERVICE LIMIT: 327.0 mm (12.87 in)



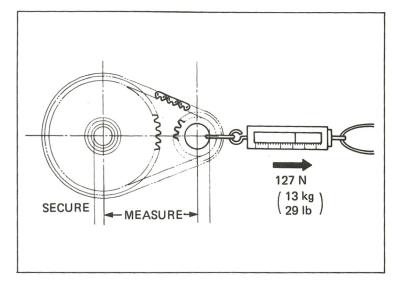


ALTERNATOR CHAIN LENGTH MEASUREMENT

Place the alternator chain over the alternator driven gears. Secure one gear.

Apply 127 N·m (13 kg, 29 lb) of tension with a spring scale to the other gear. Measure the chain length as shown.

SERVICE LIMIT: 137.8 mm (5.43 in)



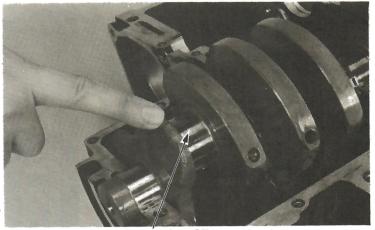
BEARING INSPECTION

CONNECTING RODS

Inspect the bearing inserts for damage or separation.

Clean all oil from the bearing inserts and crankpins.

Put a piece of plastigauge on each crankpin avoiding the oil hole.



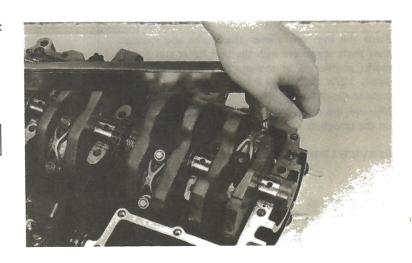
PLASTIGAUGE

Install the bearing caps and rods on the correct crankpins, and tighten them evenly.

TORQUE: 30-34 N·m (3.0-3.4 kg-m, 22-25 ft-lb)

NOTE

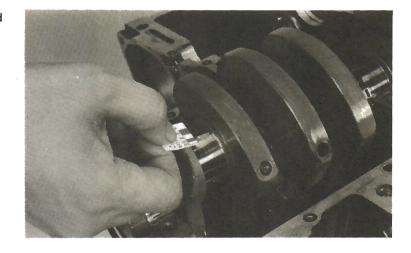
Do not rotate the crankshaft during inspection.





Remove the caps and measure the compressed plastigauge on each crankpin.

OIL CLEARANCE SERVICE LIMIT: 0.07 mm (0.003 in)

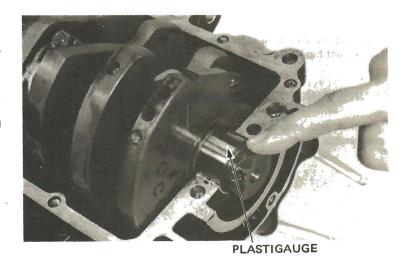


MAIN BEARINGS

Inspect the bearing inserts for damage or separation,

Clean all oil from the bearing inserts and journals.

Put a piece of plastigauge on each journal, avoiding the oil holes.



Install the main bearings on the correct journals on the lower crankcase and tighten them evenly in the sequence shown and in 2-3 steps.

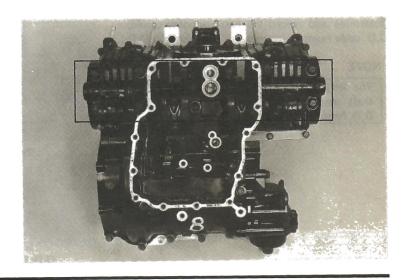
TORQUE VALUES:

8 mm bolt (Crankshaft):

21-25 N·m (2.1-2.5 kg·m, 15-18 ft-lb)

NOTE

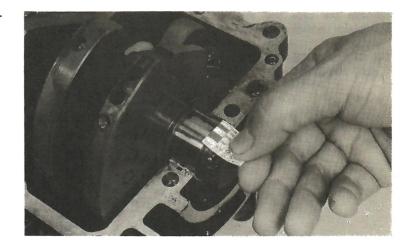
Do not rotate the crankshaft during inspection.





Remove the lower crankcase and measure the compressed plastigauge on each journal.

OIL CLEARANCE SERVICE LIMIT: 0.06 mm (0.002 in)

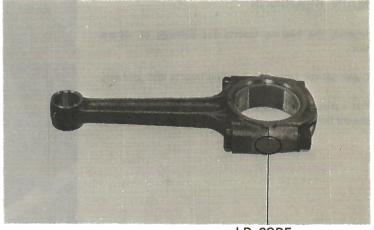


BEARING SELECTION

If rod bearing clearance is beyond tolerance, select replacement bearings as follows:

CONNECTING ROD BEARING INSERTS

Determine and record the corresponding rod I.D. code number.

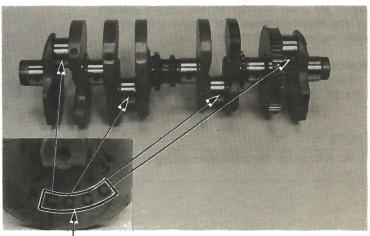


I.D. CODE

Determine and record the corresponding crankpin O.D. code number (or measure the crankpin O.D.).

NOTE

The letter A, B or C on the outside crank shaft weight is the code for each crank pin O.D. from left-to-right.



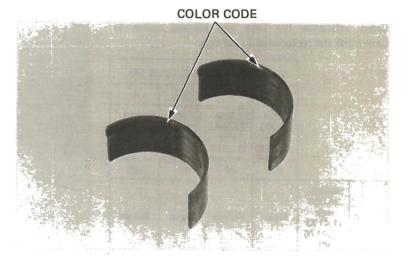
O.D. CODE



Cross reference the crankpin and connecting rod codes to determine the replacement bearing color.

CRANKPIN O.D. CODE NO.

		Α .	В	С	
					37.016— 37.024mm (1.4573— 1.4576 in)
CONNECTING ROD I.D. CODE NO.	1	40.000— 40.008 mm (1.5748— 1.5751 in)	Yellow	Green	Brown
	2	4.008— 40.016 mm (1.5751— 1.5754 in)	Green	Brown	Black
	3	40.016— 40.024 mm (1.5754— 1.5757 in)	Blown	Black	Blue



BEARING INSERT THICKNESS:

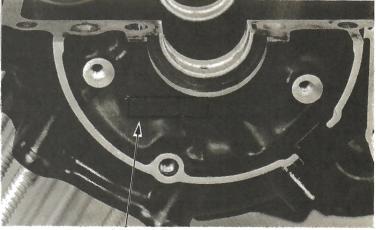
Blue : 1.502-1.506 mm (0.0591-0.0593 in)
Black : 1.498-1.502 mm (0.0590-0.0591 in)
Brown : 1.494-1.498 mm (0.0588-0.0590 in)
Green : 1.490-1.494 mm (0.0587-0.0588 in)
Yellow : 1.486-1.490 mm (0.0585-0.0587 in)

MAIN BEARING

Determine and record crankcase I.D. cord number on the upper crankcase.

NOTE

The letters A, B or C on the upper crankcase are the codes for the main journal I.D.'s from left-to-right.

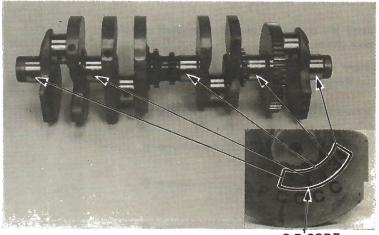


I.D. CODE

Determine and record the corresponding main journal I.D. code letters (or measure the main journal O.D.).

NOTE

The letters 1, 2, 3 or 4 on the crank weight is the code for the main journal O.D.'s from left-to-right.



O.D'CODE



Cross reference the case and journal codes to determine the replacement bearings.

			MAIN JOURNAL O.D. CODE NO.			
		1	2	3	4	
			32.994— 33.000 mm (1.2990 —1.2992 in)	32.988- 32.994 mm (1.2987 -1.2990 in)	32.982 32.988 mm (1.2985 -1.2987 in)	32.976- 32.982 mm (1.2983 -1,2985 in)
	A	36.000- 36.006 mm (1.4173 -1.4176 in)	Pink	Yellow	Green	Brown
CRANKCASE I.D.	В	36.006— 36.012 mm (1.4176 —1.4178 in)	Yellow	Green	Blown	Black
55	С	36.012— 36.018 mm (1.4178 -1.4180 in)	Green	Brown	Black	Blue



Blue : 1.511-1.514 mm (0.0595-0.0596 in) Black : 1.508-1.511 mm (0.0594-0.0595 in) Blown: 1.505-1.508 mm (0.0593-0.0594 in) Green: 1.502-1.505 mm (0.0591-0.0593 in) Yellow: 1.499-1.502 mm (0.0590-0.0591 in) Pink : 1.496-1.499 mm (0.0589-0.0590 in)

CONNECTING ROD INSTALLATION

Install the main bearings into the upper and lower crankcases.

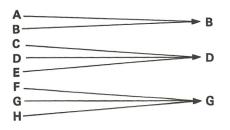
Apply molybdenum disulfide grease to the upper and lower main bearings.

Install the crankshaft with the camshaft and alternator chains.

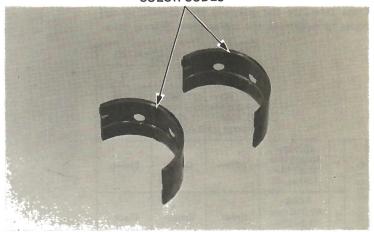
Before installing the connecting rods, make sure that the weight code combination is correct.

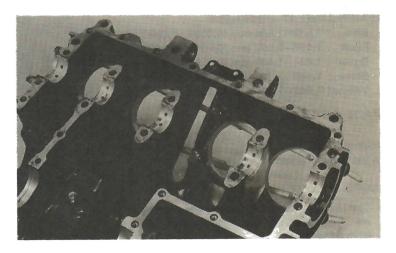
Factory set code

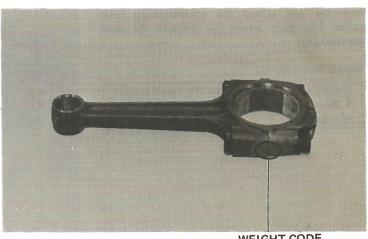
Available code







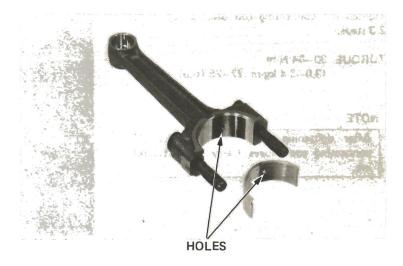




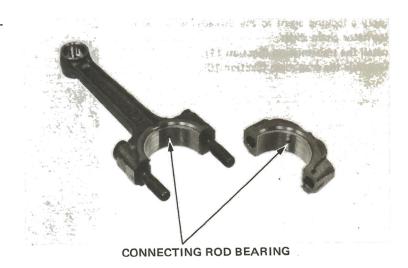
WEIGHT CODE



Align the hole in the bearing insert with the hole in the connecting rod.



Apply molybdenum disulfide grease to the connecting rod bearings.

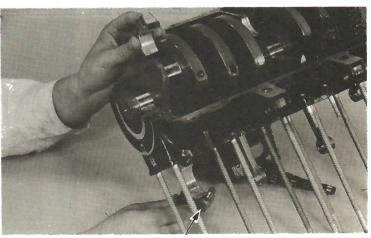


CRANKSHAFT INSTALLATION

Install the connecting rods and bearing caps.

NOTE

- Be sure the connecting rods are installed in their correct positions and the oil holes point to the front.
- Cross reference the connecting rod and cap I.D. codes to insure correct assembly.



OIL HOLE



Tighten the connecting rod bearing cap bolts, in 2-3 steps.

TORQUE: 30-34 N·m

(3.0-3.4 kg-m, 22-25 ft-lb)

NOTE

-

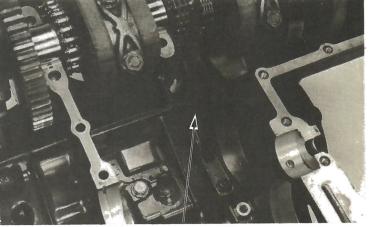
After tightening the bolts, check that the connecting rod moves freely without binding.



ROD BEARING CAP BOLTS

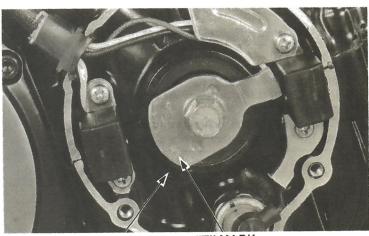
Apply a locking agent to the threads and install the alternator chain slider.

Install the transmission (Section 11). Assemble the crankcase (Section 10).



ALTERNATOR CHAIN SLIDER

If the pulse generator rotor was removed from the crankshaft: Place the No. 1 and 4 connecting rods at TDC. Align the T mark on the rotor with the crankcase index mark and install the rotor.



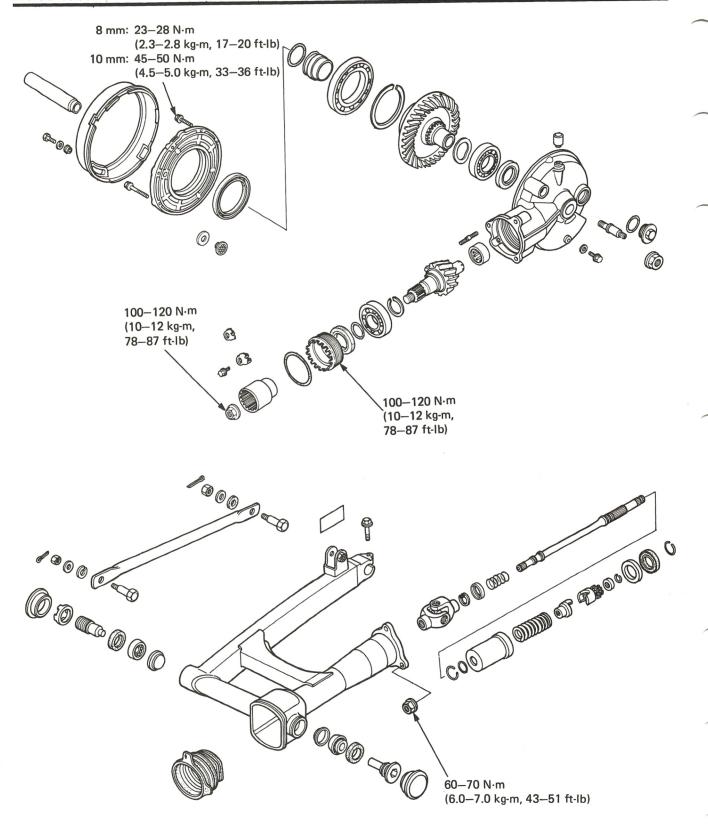
INDEX MARK

"T" MARK



MEMO







13. DRIVE TRAIN

SERVICE INFORMATION	13- 1
TROUBLESHOOTING	13- 2
FINAL DRIVE REMOVAL	13- 3
DRIVE SHAFT	13– 3
FINAL DRIVE GEAR	13- 6
FINAL DRIVE GEAR INSTALLATION	13–18

SERVICE INFORMATION

GENERAL

- The final drive gear assembly must be removed together with the drive shaft.
- Replace all oil seals and O-rings whenever the final drive gear assembly is disassembled.
- Check gear tooth contact pattern and gear backlash when the bearing, gear set and/or gear case has been replaced.

SPECIFICATIONS

		STANDARD		SERVICE LIMIT
Final gear oil	Capacity	′83	170 cc (5.75 oz)	_
	,	′84	150 cc (4.9 oz)	
,	Recommended oil	′83	Hypoid-gear oil API, GL-5 Above 5°C/41°F SAE #90 Below 5°C/41°F SAE #80	_
		′84	Hypoid-gear oil API, GL-5 SAE #80	
Gear backlash		0.08-0.18 mm (0.003-0.007 in)		0.30 mm (0.012 in)
Gear assembly preload		0.2-0.4 N·m (2-4 kg-cm, 1.7-2.9 in-lb)		_
Damper case oil capacity		20 cc (0.71 oz)		_
Damper cam spring free length		53 mm (2.1 in)		51.5 mm (2.03 in)

TORQUE VALUES

Pinion bearing retainer	100-120 N·m (10-12 kg·m, 72-87 ft-lb)
Pinion nut	100-120 N·m (10-12 kg-m, 72-87 ft-lb)
Gear case cover bolt 10 mm (locking agent)	45-50 N·m (4.5-5.0 kg-m, 32-36 ft-lb)
8 mm (locking agent)	23-28 N·m (2.3-2.8 kg·m, 17-20 ft-lb)
Final gear case attaching nut	60-70 N·m (6.0-7.0 kg-m, 43-51 ft-lb)



TOOLS

Special

Shock absorber compressor attachment A 07964—MB00100
Shock absorber compressor attachment B 07964—MB00200
Attachment 07945—3330300
Attachment 07945—3330100

Pinion puller 07931—4630200 and 07931—MB00000 or 07935—MB00000

 Pinion joint holder
 07926—ME90000

 Attachment
 07947—6340201

Common

 Driver
 07749-0010000

 Attachment, 42 x 47 mm
 07746-0010300

 Attachment, 52 x 55 mm
 07746-0010400

 Attachment, 37 x 40 mm
 07746-0030100

 Driver
 07746-0030100

 Attachment, 25 mm | D
 07746-0030200

Attachment, 25 mm I.D. 07746-0030100 or Driver 07945-3710200

Shock absorber compressor 07959—3290001

Lock nut wrench, 30/64 mm 07916—MB00000

Attachment, 32 x 35 mm 07746—0010100

Pilot 07746—0040700

TROUBLESHOOTING

Excessive noise

- 1. Worn or scored ring gear shaft and driven flange
- 2. Scored driven flange and wheel hub
- 3. Worn or scored drive pinion and splines
- 4. Worn pinion and ring gears
- 5. Excessive backlash between pinion and ring gear
- 6. Oil level too low

Oil leak

- 1. Clogged breather
- 2. Oil level too high
- 3. Seals damaged





FINAL DRIVE REMOVAL

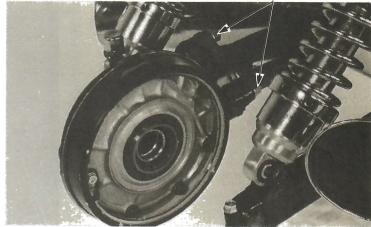
Place the motorcycle on its center stand.

Drain the final gear oil (page 2-9) and remove the rear wheel (page 15-3).

Remove the left shock absorber lower bolt.

Remove the final gear case and drive shaft assembly.





DRIVE SHAFT

REMOVAL

If the drive shaft came out of the swing arm attached to the final gear case when it was removed, do the following:

Insert the axle through the gear case and secure the case in a vice with soft jaws or shop rags by clamping the axle. Place the oil drain between the jaws for stability.

Place an oil drain pan under the damper case to catch the damper oil that will spill out,

Separate the damper unit from the gear case by gently revolving the damper in a circluar motion while tugging slightly.



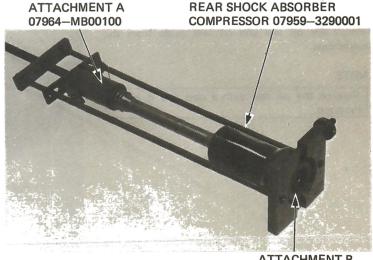
DRIVE SHAFT DAMPER CASE

DISASSEMBLY

Compress the drive shaft with the rear shock absorber compressor and attachment tools.

Drain the gear oil from the damper case.

Remove the large spring clip from the damper cam to avoid damaging it.

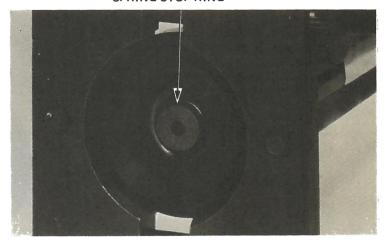


ATTACHMENT B 07964-MB0020



Remove the spring stop ring and drive shaft from the compressor.



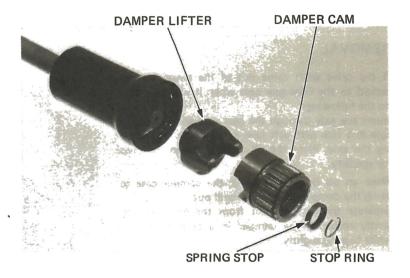


Remove the spring stop, damper cam and damper lifter from the drive shaft.

Check the damper lifter and cam for wear or damage.

NOTE

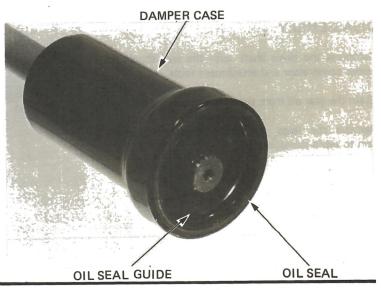
Install a new stop ring on reassembly.



Remove the oil seal and oil seal guide from the damper case.

NOTE

Replace the oil seal with a new one if it is removed.

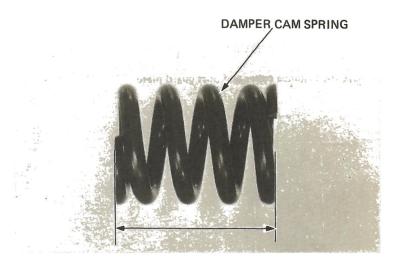




Remove the damper cam spring.

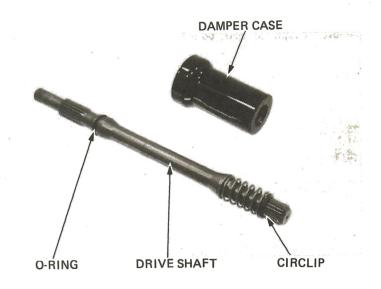
Measure the damper cam spring free length.

SERVICE LIMIT: 51.5 mm (2.03 in)



Remove the damper case and O-ring from the drive shaft.

Remove the circlip and spring.



ASSEMBLY

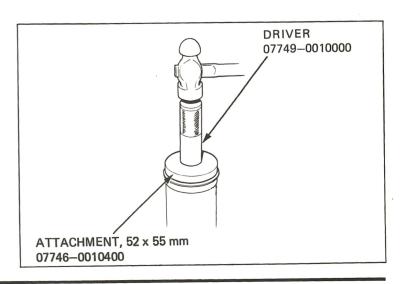
Install the damper cam spring into the damper case.

Drive the oil seal guide and oil seal in with the driver attachment and driver.

Assemble the remaining parts in the reverse order of disassembly.

NOTE

Replace the O-ring, oil seal and stop ring with new ones when reassembling the drive shaft.

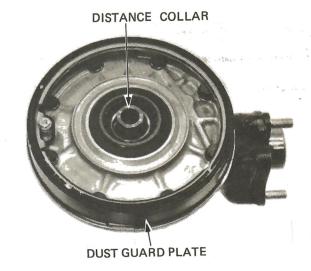




FINAL DRIVE GEAR

RING GEAR REMOVAL

Remove the distance collar and dust guard plate.

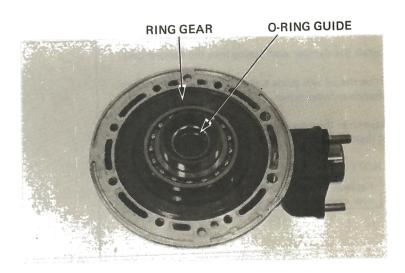


Remove the eight case cover bolts and cover.



Remove the ring gear from the final drive case.

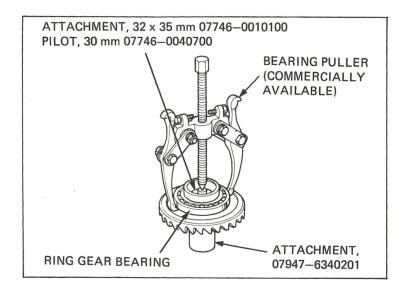
Remove the O-ring guide by tapping it from the opposite side with a plastic hammer.





RING GEAR BEARING REMOVAL

Remove the ring gear bearing and gear adjusting spacer.



CASE COVER OIL SEAL REPLACEMENT

Remove the oil seal from the case cover and drive in a new oil seal.



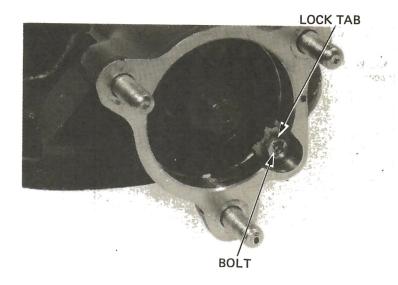
PINION GEAR REMOVAL

Install the pinion joint holder onto the pinion joint and remove the pinion shaft nut. Remove the tool and pinion joint.





Remove the retainer lock tab.



Remove the pinion retainer with the retainer B wrench.



Pull the pinion assembly off with the pinion puller.



PINION PLILLER ATTACHMENT KIT

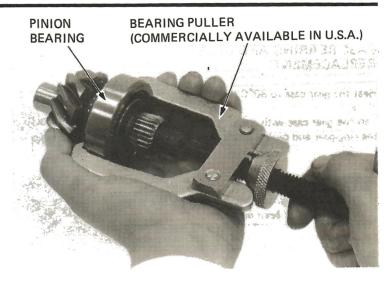
Date of Issue: Sept., 1982 © HONDA MOTOR CO., LTD.



PINION BEARING REMOVAL

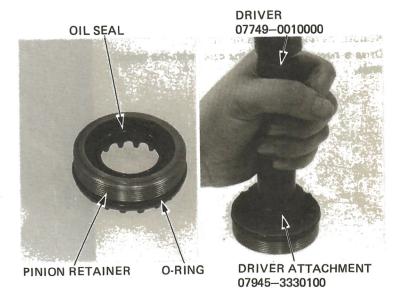
Pull the bearing outer and inner races off with a bearing puller.

Pull the other inner race off with the same tool and remove the pinion adjustment spacer.



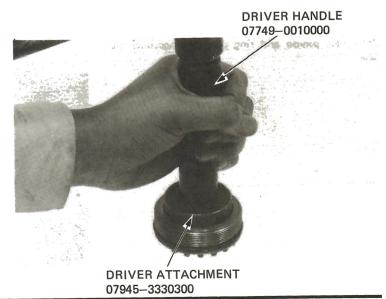
PINION RETAINER OIL SEAL REPLACEMENT

Remove the O-ring and oil seal from the pinion retainer.



Drive a new oil seal into the retainer.

Coat a new O-ring with oil and install it onto the retainer.





CASE BEARING AND OIL SEAL REPLACEMENT

Heat the gear case to 80°C (176°F).

Tap the gear case with a plastic hammer and remove the ring gear and pinion bearings.

WARNING

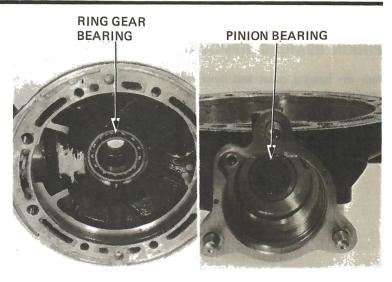
Always wear gloves when handling the gear case after it has been heated.

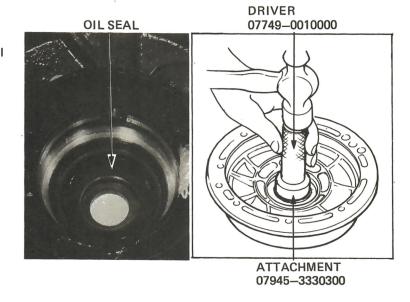
NOTE

Use bearing remover, 35 mm, 07936—371040 to remove ring gear if necessary.

Remove the ring gear shaft oil seal.

Drive a new oil seal into the case, with the special tools.





Drive new pinion and ring gear bearings into the case.

07749-0010000

ATTACHMENT 22 x 25 mm

DRIVER

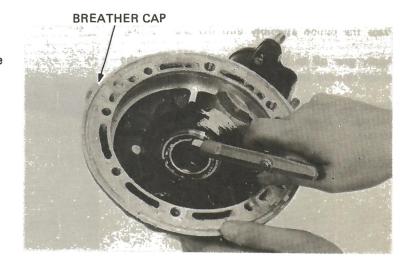
ATTACHMENT, 32 x 35 mm 07746-0010100

ATTACHMENT, 52 x 55 mm 07746 - 0010400



BREATHER HOLE CLEANING

Remove the breather hole cap and blow through the breather hole with compressed air.



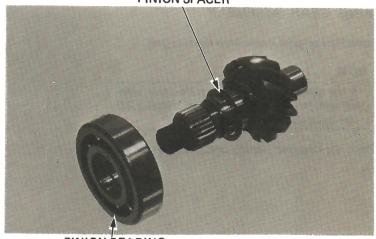
PINION GEAR ASSEMBLY

Install the original pinion gear spacer.

NOTE

When the gear set, pinion bearing and/or gear case has been replaced, use a 2.0 mm thick spacer.

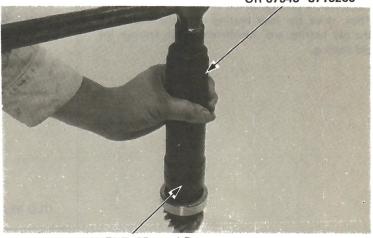




PINION BEARING

Press the pinion bearing onto the shaft until it seat. Press only on the inner race.

DRIVER 07746-0030100 OR 07945-3710200



ATTACHMENT, 25 mm I.D. 07746-0030200

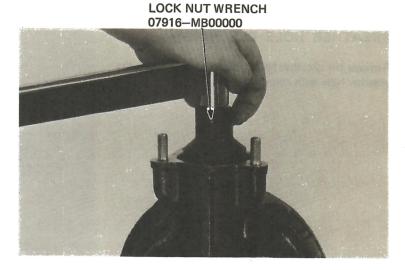


Place the pinion assembly into the gear housing.

Apply gear oil to the O-ring and threads on the pinion retainer. Install the O-ring guide tool.

Screw in the pinion retainer to press the pinion bearing in place, then tighten it to the specified torque.

TORQUE: 100-120 N·m (10-12 kg·m, 72-87 ft-lb)



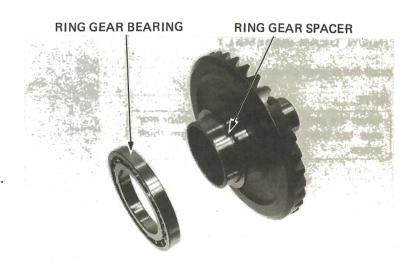
RING GEAR ASSEMBLY

Install the original spacer onto the ring gear.

NOTE

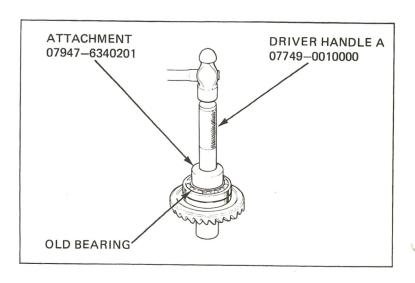
If the gear set, pinion bearing, ring gear bearing and/or gear case is replaced, install a 2.0 mm thick spacer.

Place the ring gear bearing over the ring gear shaft.



Place a new ring gear bearing on the ring gear shaft. Place the old bearing on top of it.

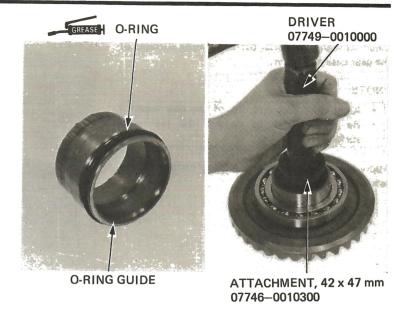
Then, drive the new bearing onto the shaft with the old bearing and attachment. Then remove the old bearing.





Install a new O-ring on the O-ring guide.

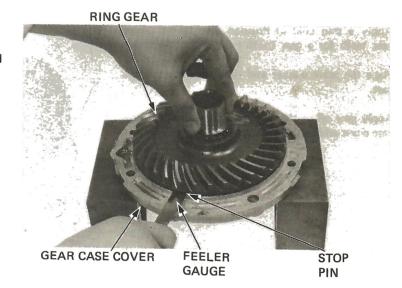
Apply grease to the O-ring and drive the O-ring guide onto the ring gear shaft.



Install the ring gear into the gear case cover.

Measure the clearance between the ring gear and the ring gear stop pin with a feeler gauge.

CLEARANCE: 0.30-0.60 mm (0.012-0.024 in)



If the clearance exceeds the limit, remove the ring gear. Heat the gear case cover to approximately 80°C (176°F) and remove the stop pin by tapping the cover behind the pin.

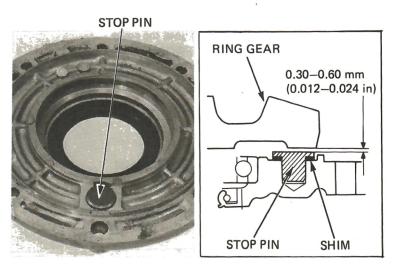
WARNING

Always wear gloves when handling the gear case after it has been heated.

Install a stop pin shim to obtain the correct clearance.

SHIM THICKNESS: A 0.10 mm (0.004 in) B 0.15 mm (0.006 in)

Install the shim and drive the stop pin into the case cover.



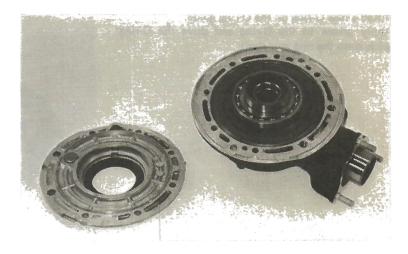


Clean all sealing material off the mating surfaces of the gear case and cover.

NOTE:

- · Keep dust and dirt out of the gear case.
- Be careful not to damage the mating surfaces.

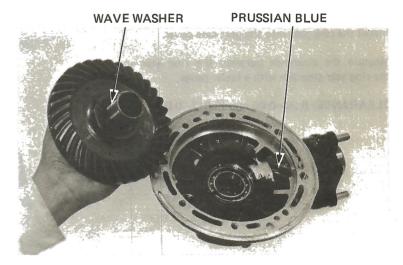
Apply liquid sealant to the mating surfaces of the gear case cover.



Apply a thin coat of Prussian Blue to the pinion gear teeth for a gear tooth contact pattern check.

Place the wave washer and ring gear into the gear case.

Apply gear oil to the lip of the oil seal on the gear case cover and install the gear case cover.



Tighten the cover bolts in 2-3 steps until the cover evenly touches the gear case, then tighten the 8 mm bolts to the specified torque in a crisscross pattern in the two or more steps.

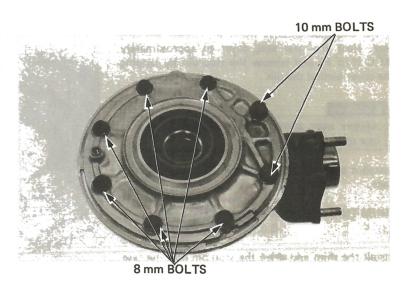
TORQUE: 23-28 N·m (2.3-2.8 kg·m, 17-20 ft-lb)

Then tighten the 10 mm bolts.

TORQUE: 45-50 N·m (4.5-5.0 kg-m, 33-36 ft-lb)

NOTE:

Apply a locking agent to the bolt threads.



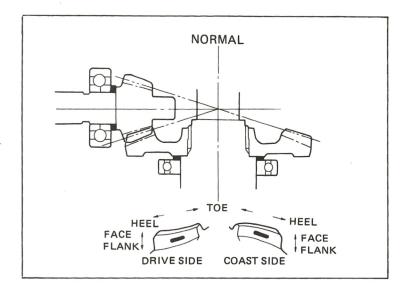


GEAR TOOTH CONTACT PATTERN CHECK

Remove the oil filler cap from the final gear case.

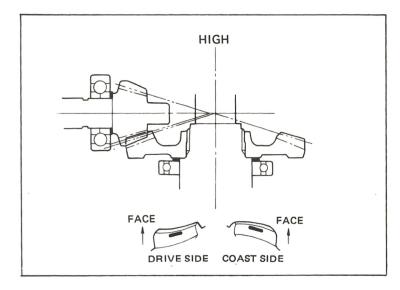
Rotate the ring gear several times in the normal direction of rotation.

Check the gear tooth contact pattern through the oil filler hole. The pattern is indicated by the Prussian Blue applied to the pinion before assembly. Contact is normal if Prussian Blue is transferred to the approximate center of each tooth and slightly towards the face.



If the patterns are not correct, remove and replace the pinion spacer.

Replace the pinion spacer with a thicker one if the contacts are too high.

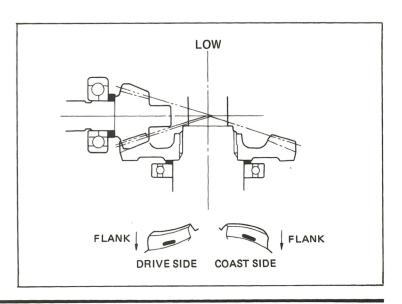


Replace the pinion spacer with a thinner one if the contacts are too low.

The patterns will shift about 1.5–2.0 mm (0.06–0.08 in) when the thickness of the spacer is changed by 0.1 mm (0.004 in).

PINION SPACER:

- A 1.82 mm (0.072 in)
- B 1.88 mm (0.074 in)
- C 1.94 mm (0.076 in)
- D 2.00 mm (0.079 in) standard
- E 2.06 mm (0.081 in)
- F 2.12 mm (0.083 in)
- G 2.18 mm (0.086 in)





BACKLASH INSPECTION

Remove the oil filler cap.

Set the final gear assembly into a jig or stand to hold it steady.

Set a horizontal type dial indicator on the ring gear, through the oil filler hole.

Hold the pinion gear spline by hand. Rotate the ring gear by hand until gear slack is taken up.

Turn the ring gear back and forth to read backlash.

STANDARD: 0.08-0.18 mm (0.003-0.007 in) SERVICE LIMIT: 0.30 mm (0.02 in)

Remove the dial indicator. Turn the ring gear 120° and measure backlash. Repeat this procedure once more.

Compare the fifference of the three measurements.

DIFFERENCE OF MEASUREMENT SERVICE LIMIT: 0.10 mm (0.004 in)

If the difference in measurements exceeds the limit, it indicates that the bearing is not installed squarely. Inspect the bearings and reinstall if necessary.

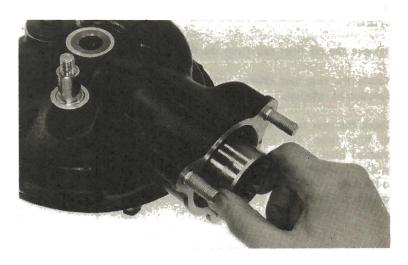
If backlash is excessive, replace the ring gear spacer with a thicker one.

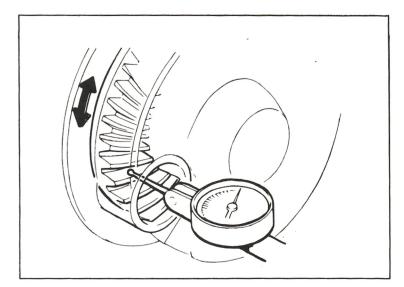
If the backlash is too small, replace the ring gear spacer with a thinner one.

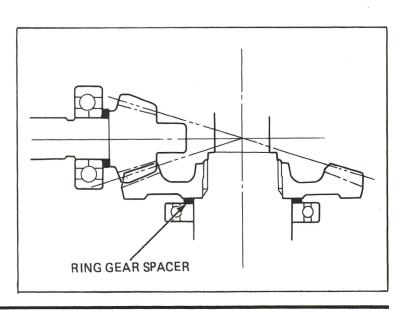
Backlash is changed by about 0.06-0.07 mm (0.002-0.003 in) when thickness of the spacer is changed by 0.10 mm (0.004 in)

RING GEAR SPACER:

- A 1.82 mm (0.072 in)
- B 1.88 mm (0.074 in)
- C 1.94 mm (0.076 in)
- D 2.00 mm (0.079 in) standard
- E 2.06 mm (0.081 in)
- F 2.12 mm (0.083 in)
- G 2.18 mm (0.086 in)
- H 2.24 mm (0.088 in)
- 1 2.30 mm (0.091 in)







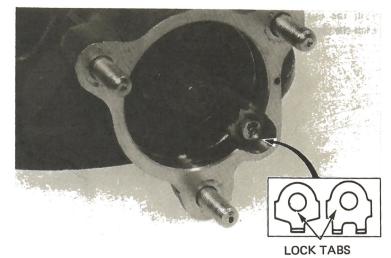


PINION JOINT INSTALLATION

Install the appropriate pinion lock tab.

NOTE:

There are two types of lock tabs.



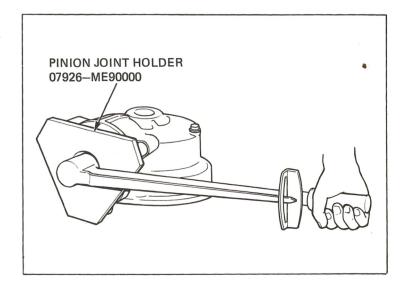
Apply gear oil to the oil seal lip contact surface of the pinion joint and install the pinion joint.

Install the pinion joint holder tool and tighten the pinion nut.

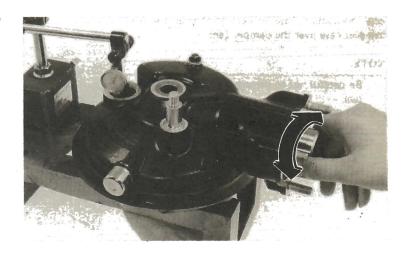
TORQUE: 100-120 N·m

(10-12 kg-m, 72-87 ft-lb)

Remove the pinion joint holder tool.

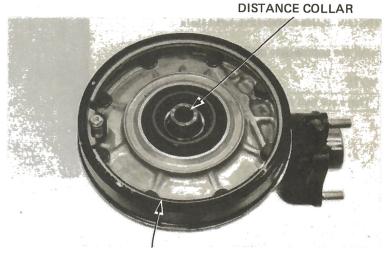


Make sure that the gear assembly rotates smoothly without binding by turning the pinion joint.





Install the dust guard plate and torque the bolts. Install the distance collar.



DUST GUARD PLATE

FINAL DRIVE GEAR INSTALLATION

Fill the damper case with the recommended type and amount of lubricant.

RECOMMENDED OIL: HYPOID GEAR OIL API, GL-5

Above 5°C/41°F: SAE #90 Below 5°C/41°F: SAE #80 OIL CAPACITY: 20cc (0.71 oz)



Keep the damper case vertical and install the final drive gear case over the damper cam.

NOTE:

- Be careful not to damage the drive shaft oil seal.
- Do not let the gear case separate from the damper case or the oil will spill out.



JOINT STOP RING



Insert the drive shaft assembly into the swingarm and align its splines with the universal joint.

Install the three final gear case attaching nuts loosely.

Install the rear wheel.

Tighten the three final gear case attaching nuts to the specified torque.

TORQUE: 60 - 70 N⋅m

(6.0 - 7.0 kg-m, 43-51 ft-lb)

Tighten the axle nut. TORQUE: 60 — 80 N·m

(6.0 - 8.0 kg-m, 43-58 ft-lb)

Tighten the axle pinch bolt. TORQUE: 20-30 N·m

(2.0-3.0 kg-m, 14-22 ft-lb)



Place the motorcycle on its center stand and make sure that the drain bolt is tightened.

Remove the oil filler cap and pour the specified amount of recommended oil up to the filler neck,

RECOMMENDED OIL: HYPOID GEAR OIL

'83 : Over 5°C: SAE 90 Below 5°C: SAE 80

'84: SAE 80

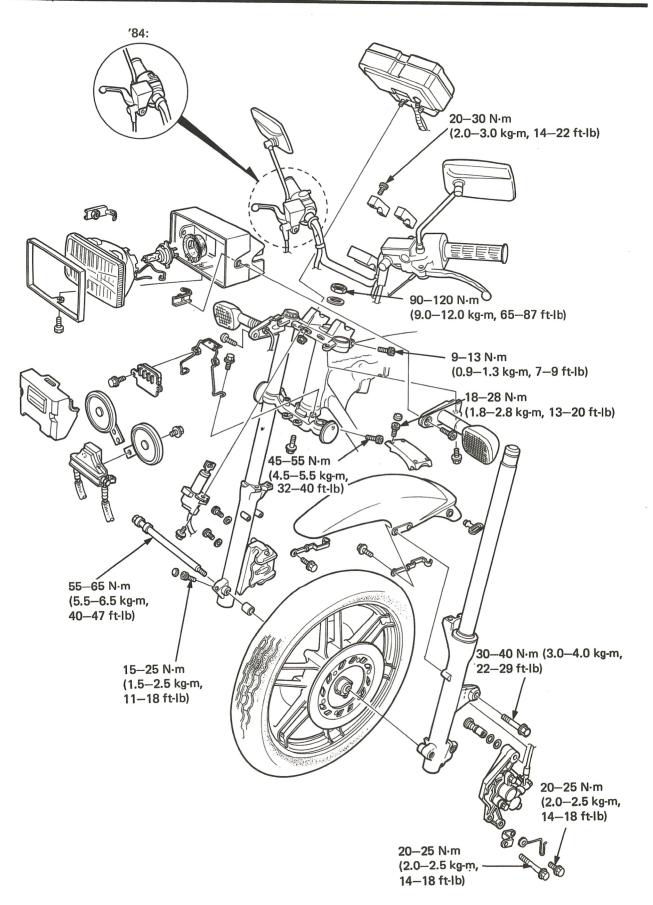
OIL CAPACITY:

'83: 170 cc (5.75 oz) '84: 150 cc (4.9 oz)



DRAIN BOLT







14. FRONT WHEEL/ SUSPENSION

SERVICE INFORMATION

GENERAL

- A jack or other support is required to support the motorcycle for some service operations.
- Never ride on the rim or try to bend the wheel.
- For front brake service information, refer to section 16, Hydraulic Brake.

SPECIFICATIONS

		STANDARD	SERVICE LIMIT
Axle shaft runout		_	0.2 mm (0.01 in)
Front wheel rim runout	Radial	0.3 mm (0.01 in) max.	2.0 mm (0.08 in)
	Axial	0.3 mm (0.01 in) max.	2.0 mm (0.08 in)
Wheel bearing play		_	0.03 mm (0.001 in)
Fork spring free length		522.9 mm (20.6 in)	512.4 mm (20.2 in)
Fork tube runout		_	0.2 mm (0.01 in)
Front fork fluid capacity		Right 450 cc (15.2 oz)	
		Left 465 cc (15.7 oz)	_
Front fork air pressure		$0 \sim 40 \text{ kPa } (0 \sim 0.4 \text{ gk/cm}^2, 0 \sim 6 \text{ psi})$	_

TORQUE VALUES

Handlebar upper holder	20-30 N·m (2.0-3.0 kg-m, 14-22 ft-lb)	
Upper mount bolt (L)	35-45 N·m (3.5-4.5 kg-m, 25-33 ft-lb)	
Piston pin bolt (L)	20-25 N·m (2.0-2.5 kg·m, 14-18 ft-lb)	
Lower mount bolt (L)	20-25 N·m (2.0-2.5 kg-m, 14-18 ft-lb)	
Front axle	55-65 N·m (5.5-6.5 kg-m, 40-47 ft-lb)	
Caliper mounting bolt (R)	30-40 N·m (3.0-4.0 kg-m, 22-29 ft-lb)	
Axle pinch bolt	15-25 N·m (1.5-2.5 kg-m, 11-18 ft-lb)	
Front fork socket bolt	15-25 N·m (1.5-2.5 kg-m, 11-18 ft-lb)	
Fork tube cap	15-30 N·m (1.5-3.0 kg·m, 11-22 ft-lb)	
Steering stem nut	90-120 N·m (9.0-12.0 kg-m, 65-87 ft-lb)	
Brake disc	35-40 N·m (3.5-4.0 kg-m, 25-29 ft-lb)	
Fork top bridge pinch bolt	9-13 N·m (0.9-1.3 kg-m, 7-9 ft-lb)	
Fork lower pinch bolt	45-55 N·m (4.5-5.5 kg-m, 33-40 ft-lb)	
Fork brace	18-28 N·m (1.8-2.8 kg-m, 13-20 ft-lb)	



TOOLS

Special

Hex. wrench, 6 mm 07917–3230000 or commercially available Snap ring pliers 07914–3230001 or commercially available Fork seal driver 07947–4630100

Race remover/installer 07946—3710400
Steering stem socket 07916—3710100

Steering stem driver 07946—MB00000 or 07946—3710601 and 07964—MB00200

Common

 Driver
 07749-0010000

 Attachment, 42 x 47 mm
 07746-0010300

 Pilot, 15 mm
 07746-0040300

 Lock nut wrench, 30 x 32 mm
 07716-0020400 or commercially available

 Extension bar
 07716-0020500 or commercially available

 Bearing remover expander
 07746-0050100

 Bearing remover expander
 07746-0050100

 Bearing remover collect, 15 mm
 07746-0050400

 Pin spaner
 07702-0010000

TROUBLESHOOTING

Heard steering

- 1. Steering bearing adjustment nut too tight.
- 2. Faulty steering stem bearings.
- 3. Damaged steering stem bearings.
- 4. Insufficient tire pressure.

Steers to one side or does not track straight

- 1. Unevenly adjusted right and left shock absorbers.
- 2. Bent front forks,
- 3. Bent front axle; wheel installed incorrectly.

Front wheel wobbling

- 1. Bent rim
- 2. Worn front wheel bearings.
- 3. Faulty tire.
- 4. Axle nut not tightened properly.

Soft suspension

- 1. Weak fork springs.
- 2. Insufficient fluid in front forks.
- 3. Front fork air pressure incorrect.

Hard suspension

- 1. Incorrect fluid weight in front forks.
- 2. Front fork air pressure incorrect.
- 3. Bent fork tubes.
- 4. Clooged fluid passage.
- 5. Clogged anti-dive orifice.

Front suspension noise

- 1. Worn slider or guide bushings.
- 2. Insufficient fluid in forks.
- 3. Loose front fork fasteners.
- 4. Lack of grease in speedometer gearbox.



HEADLIGHT

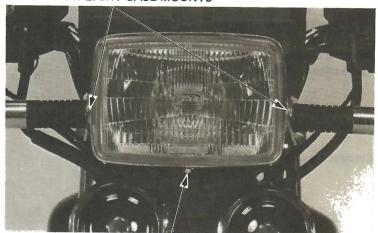
CASE REMOVAL

Remove the headlight mounting screw.

Disconnect the wire coupler and remove the headlights.

To remove the headlight case, unscrew the headlight case mounts.

HEADLIGHT CASE MOUNTS



HEADLIGHT MOUNTING SCREW

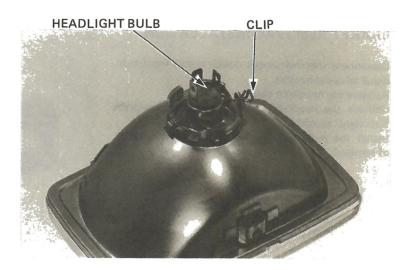
BULB REPLACEMENT

Remove the clip and headlight bulb.

Install a new headlight bulb and install the clip.

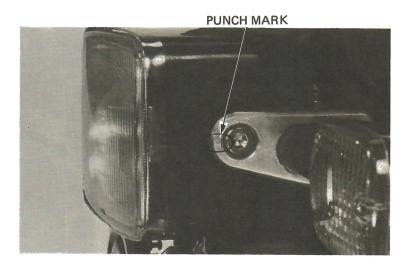
CAUTION

Wear clean gloves when installing the halogen bulb. If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent hot spots and its early failure.



CASE INSTALLATION

Alighn the index marks on the headlight case with the punch marks on the brackets.

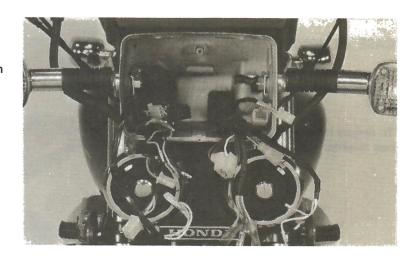




WIRING CONNECTIONS IN HEADLIGHT CASE

Route the wires into the headlight case through the headlight case hole.

Connect the color-coded wires and couplers.



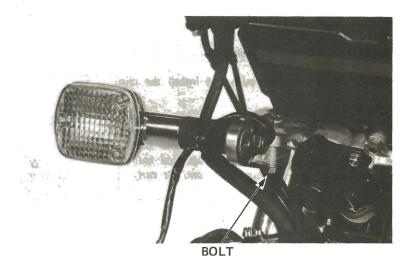
BRAKET REMOVAL/INSTALLATION

Disconnect the instrument couplers and front turn signal wire connectors.

Remove the headlight case.

Remove the headlight bracket bolts and bracket/ turn signal assembly.

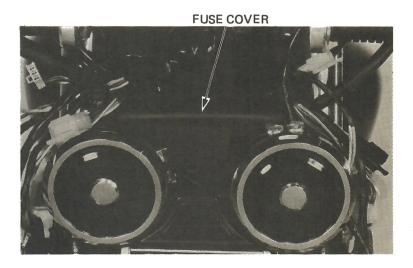
Install the headlight bracket in the reverse order of removal.



FUSE HOLDER

REPLACEMENT

Remove the headlight case (page 14-3) and remove the fuse cover.

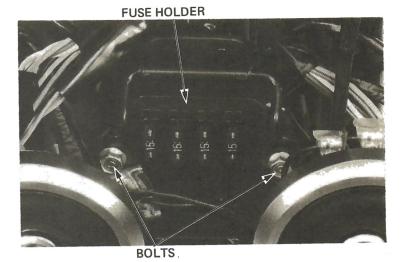




Remove the two fuse holder mounting bolts and disconnect the wire couplers. Remove the fuse holder.

NOTE

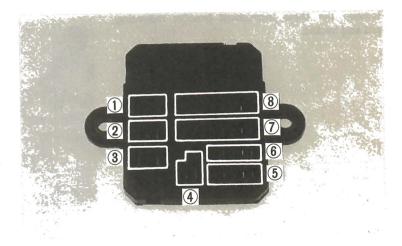
Before disconnecting the holder wire couplers, note the position of each one.



Connect the couplers to the fuse holder as shown.

- 1. Engine stop switch
- 2. Ignition switch
- 3. Main wire harness
- 4. Ignition switch
- 5. Turn signal switch
- 6. Instrument
- 7. Main wire harness
- 8. Brake light switch

Install the fuse holder in the reverse order of removal.



INSTRUMENTS

REMOVAL

Remove the headlight case (page 14-3).

Disconnect the instrument wire connectors at the fuse holder.

Remove the speedometer cable from the instru-

Remove the instrument mounting nuts and instruments.



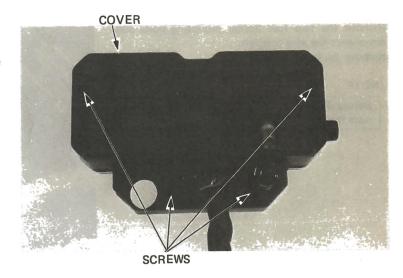
NUTS

SPEEDOMETER CABLE

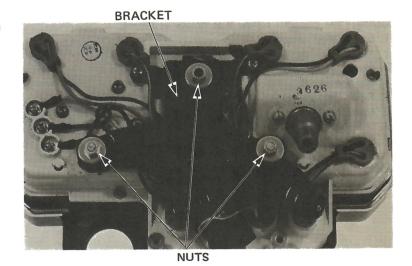


DISASSEMBLY

Remove the four instrument cover screws and the cover.

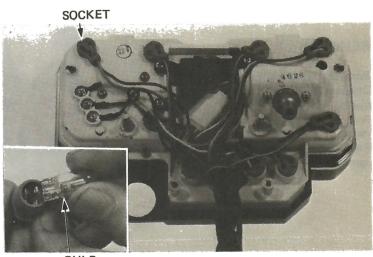


Remove the three instrument bracket mounting nuts and backet.



Remove the instrument bulb socket and replace any burnt out bulbs.

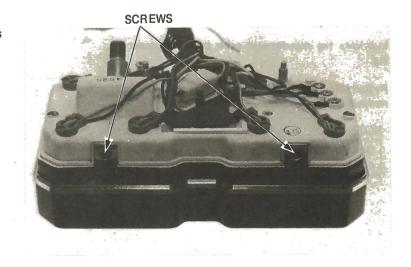
After installing a new bulb, check for continuity. If the bulb doesn't light, inspect the wiring for an open or short circuit.



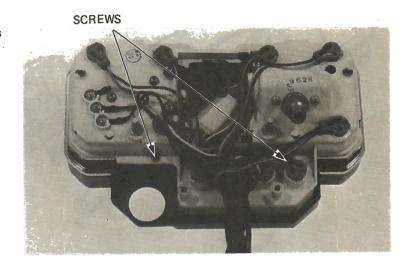
BULB



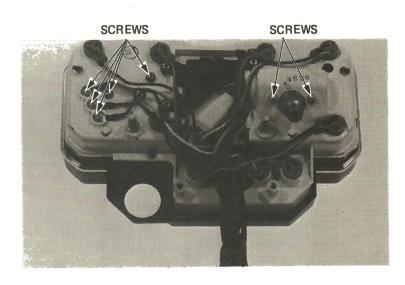
Remove the two instrument cover mounting screws at the top of the cover.



Remove the two instrument cover mounting screws at the rear of the cover.



Remove the speedometer and tachometer by removing the screws shown.





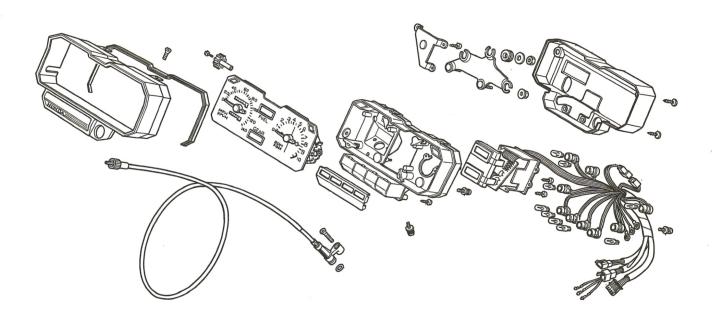
ASSEMBLY/INSTALLATION

Lubricate the speedometer cable before reconnecting.

Reassemble and install in the reverse order of removal and disassembly.

NOTE

On this meter you can replace two meter probes and units separately.



HOLE



HANDLEBAR SWITCHES

HANDLEBAR SWITCH REPLACEMENT

NOTE

This procedure is for either right or left handlebar switch replacement. The procedures for the right switch are described here.

Remove the handlebar switch mounting screws. Remove the throttle cables.

Disconnect the switch wires from the switch.

Remove the headlight case and the fuse holder (page 14-5).

Disconnect the right handlebar switch couplers and remove the switch.

Install a new switch aligning the switch pin with the hole in the handlebar. Tighten the forward screw first, then tighten the rear screw.

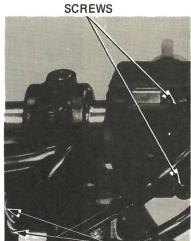
Check the operation of the switch.

After installing, adjust throttle cable free play (page 3-6).

HANDLEBAR REMOVAL

Remove the harness wire bands.

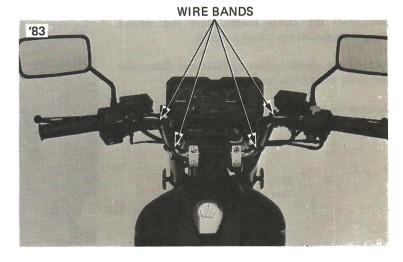
Remove the headlight case (page 14-3) and the fuse holder (page 14-4).

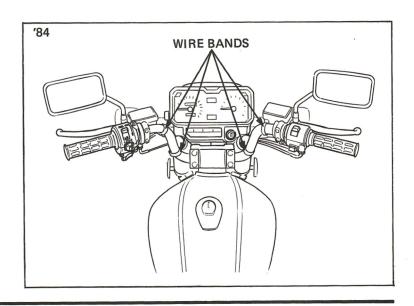




SWITCH WIRES

PIN







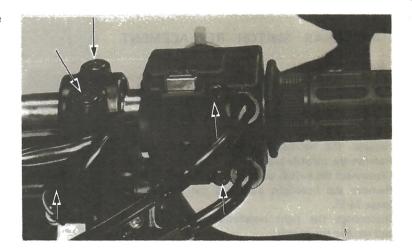
Disconnect the brake light switch wires and remove the two screws on the switch housing. Remove the brake master cylinder.

CAUTION

Secure the brake cylinder in an upright position to prevent the fluid from leaking and damaging the paint and to prevent air from entering the brake system.

NOTE

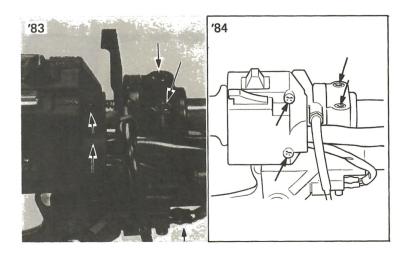
Do not loosen the brake hose unless necessary.



Disconnect the clutch switch wires and remove the two screws on the switch housing.

Remove the clutch master cylinder and disconnect the choke cable from the choke lever.

Remove the handlebar holders and handlebar.



HANDLEBAR INSTALLATION

Place the handlebar onto the lower holder aligning the punch mark with the upper face of the lower holder.

Install the upper holders with the punch mark facing up and tighten the forward bolts first, then tighten the rear bolts.

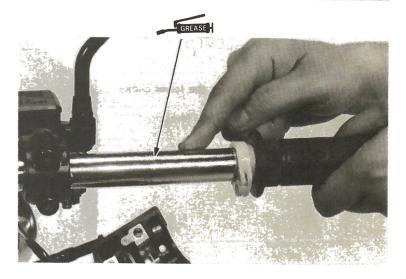
TORQUE: 20-30 N·m (2.0-3.0 kg-m, 14-22 ft-lb)



PUNCH MARK

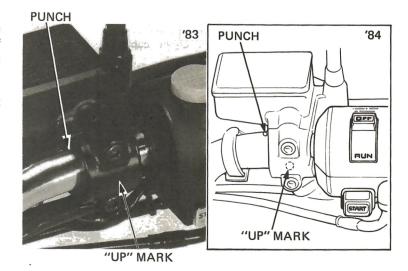


Apply grease to the throttle grip sliding surface and slide the throttle grip over the handlebar.



Install the front brake master cylinder with the 'UP' mark on the holder facing up. Align the end of the holder with the handlebar punch mark. Tighten the upper bolt first, then the lower bolt.

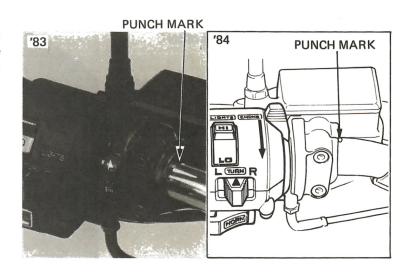
Install the right handlebar switch and connect the brake light switch wires (page 14-9).



Connect the choke cable to the choke lever and install the clutch master cylinder. Set the end of the holder over the punch mark on the handlebar. Tighten the upper bolt first, then the lower bolt.

Install the left handlebar switch and connect the clutch switch wires (page 14-9).

Route the switch wires properly (page 14-4).





CHOKE CABLE REPLACEMENT

Remove the fuel tank.

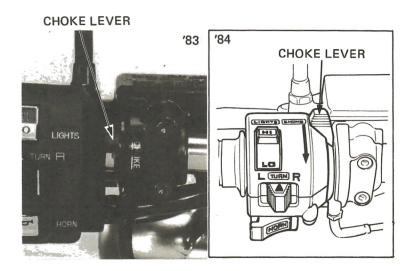
Disconnect the choke cable from the lower choke cable bracket.

Remove the cable end from the choke lever.



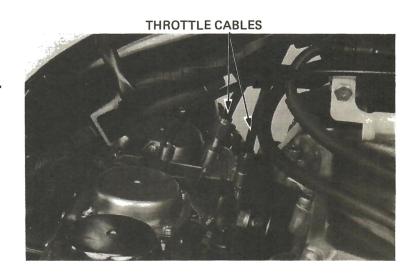
Remove the clutch master cylinder holder and remove the choke cable from the choke cable lever on the handlebar.

Lubricate the choke cable.



THROTTLE CABLE REPLACEMENT

Remove the fuel tank.
Remove the throttle cables from the carburetors.





Remove the right handlebar switch housing. Remove the throttle cables from the throttle grip.

Lubricate the new throttle cables and install them. Adjust throttle cable free play (page 3-6).



IGNITION SWITCH

REMOVAL/INSTALLATION

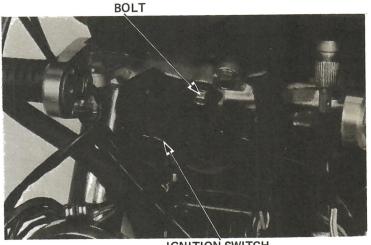
Remove the headlight and headlight case (page 14-3).

Remove the fuse cover and fuse holder.

Disconnect the ignition switch couplers.

Remove the ignition switch mounting bolts and ignition switch.

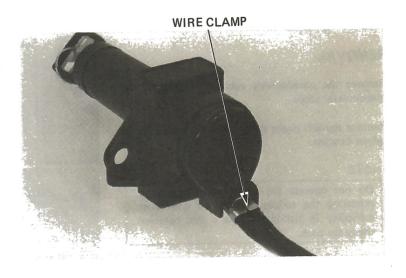
Install the ignition switch in the reverse order of removal.



IGNITION SWITCH

DISASSEMBLY/ASSEMBLY

Open the wire clamp tongue up and remove the clamp.



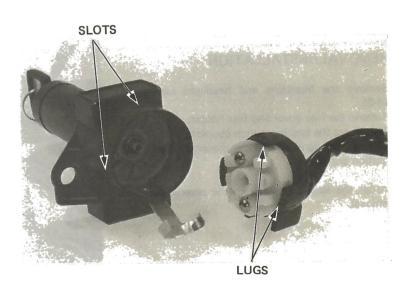


Insert the ignition key and turn it to between the ON and OFF detent positions.



Push in the lugs in the slots and pull the contact base from the switch.

Assemble the ignition switch in the reverse order of disassembly.



FRONT WHEEL

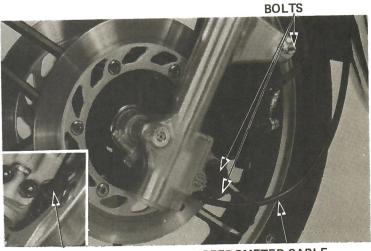
REMOVAL

Remove the speedometer cable set screw and the speedometer cable.

Remove the left brake caliper bracket bolts and the caliper bracket.

NOTE

Do not operate the front brake lever after removing the caliper. To do so will cause difficulty in fitting the brake disc between the brake pads.

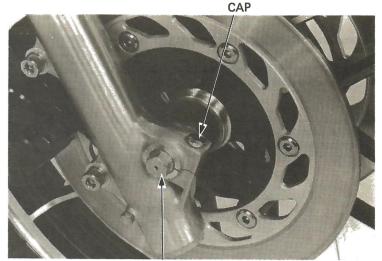


SCREW

SPEEDOMETER CABLE



Remove the cap and loosen the axle pinch bolt. Loosen and remove the front axle and remove the front wheel.



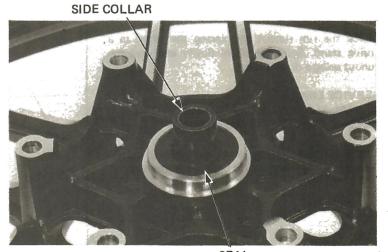
FRONT AXLE

DISASSEMBLY

Remove the brake disc mounting bolts and discs.



Remove the side collar and right seal.



SEAL



BEARING REMOVER EXPANDER 07746-0050100

Remove the left seal and speedometer gear retainer.

Remove the wheel bearings and the distance collar from the hub with the special tools.

NOTE

If the bearings are removed, they should be replaced with new ones. See inspection below.



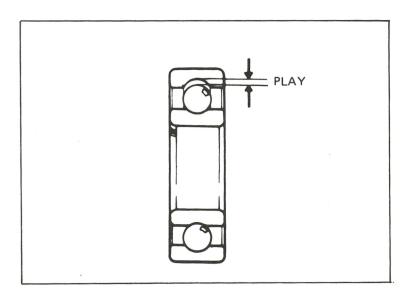
BEARING REMOVER COLLET, 15 mm 07746-0050400

WHEEL BEARING INSPECTION

Check wheel bearing play by placing the wheel in a truing stand and spinning the wheel by hand.

Replace the bearings if they are noisy or have excessive play.

SERVICE LIMIT: 0.03 mm (0.001 in)



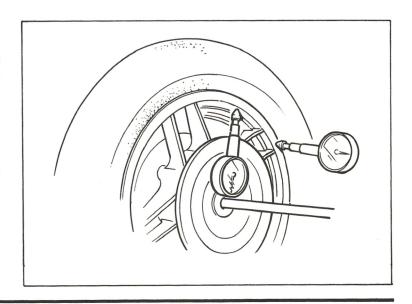
WHEEL INSPECTION

Check the rim runout by placing the wheel in a truing stand. Spin the wheel slowly and read the runout using a dial indicator.

SERVICE LIMITS:

RADIAL RUNOUT: 2.0 mm (0.08 in) AXIAL RUNOUT: 2.0 mm (0.08 in)

The wheel cannot be repaired and must be replaced with a new one if the service limits are exceeded,



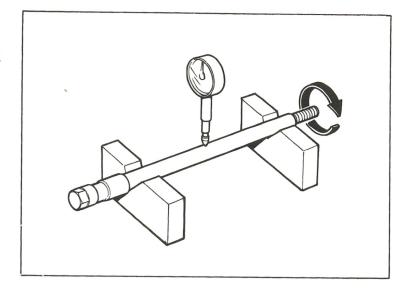




AXLE INSPECTION

Set the axle in V blocks and measure the runout. The actual runout is 1/2 of the total indicator reading.

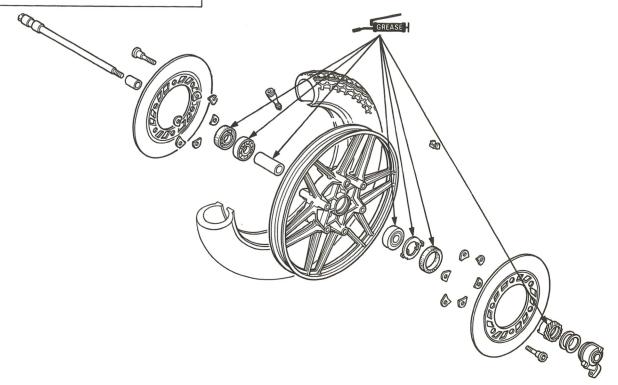
SERVICE LIMIT: 0.2 mm (0.01 in)



ASSEMBLY

WWARNING

Do not get grease on the brake disc or stopping power will be reduced.



NOTE

- · The cast wheel has no rim band.
- The front wheel uses a tubeless tire. For tubeless tire repair, refer to the Honda Tubeless Tire Manual.



Drive in the left bearing first and press the distance collar into place.

NOTE

Be certain the distance collar is in position before installing the right bearing.

Drive in the right bearing squarely.

NOTE

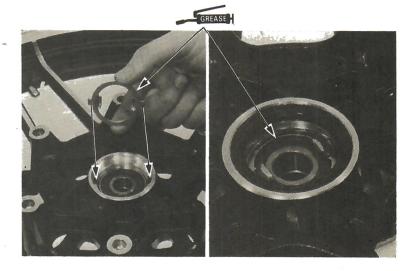
Drive the bearing into position, making sure that it is fully seated and that the sealed side is facing out.



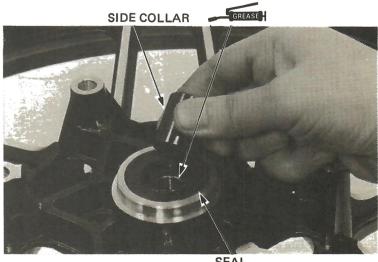
ATTACHMENT, 42 x 47 mm 07746-0010300 PILOT, 15 mm 07746-0040300

Install the speedometer gear retainer into the wheel hub, aligning the tangs with the slots.

Install the left seal.



Install the right seal and side collar.



SEAL

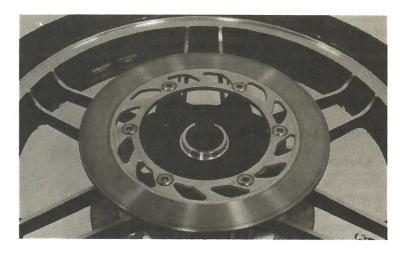


Apply oil to the brake disc bolt threads. Install the brake disc with the "R" mark on the right and the disc with the "L" mark on the left.

TORQUE: 35-40 N·m (3.5-4.0 kg·m, 25-29 ft-lb)

Install the speedometer gearbox in the wheel hub, aligning the tangs with the slots.

Clean the brake discs with a high quality degreasing agent.



INSTALLATION

Set the front wheel under the fender and fit the caliper over the disc. Install the left brake caliper bracket and caliper taking care not to damage the brake pads. Install the caliper bracket mounting bolts.

TORQUE:

UPPER MOUNT BOLT: 35-45 N·m (3.5-4.5 kg-m, 25-33 ft-lb) **PISTON PIN BOLT:** 20-25 N·m (2.0-2.5 kg-m, 14-18 ft-lb) LOWER MOUNT BOLT:

20-25 N·m (2.0-2.5 kg-m, 14-18 ft-lb)

UPPER MOUNT BOLT

PISTON PIN BOLT

LOWER MOUNT BOLT

Align the speedometer gearbox with the tang on the left fork leg as shown.

Tighten the axle to the specified torque.

TORQUE: 55-65 N·m (5.5-6.5 kg-m, 40-47 ft-lb)



TANG



Measure the distance between the outside surface of the right brake disc and the rear of the right caliper holder with a 0.7 mm (0.028 in) feeler gauge. If the gauge cannot be inserted, pull the right fork out until the gauge can be inserted.

Tighten the axle pinch bolt to the specified torque.

TORQUE: 15-25 N·m (1.5-2.5 kg·m, 11-18 ft-lb)

CAUTION

After installing the wheel, apply the brakes several times and recheck the clearance on both sides. Failure to provide the specified clearance will damage the brake discs and affect braking efficiency.

Install the speedometer cable.

FRONT FORK

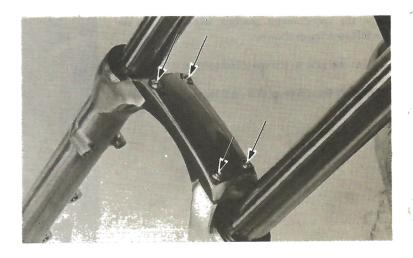
Remove the front wheel (page 14-14). Remove the brake caliper and brackets. Remove the fender.



0.7 mm (0.028 in) FEELER GAUGE

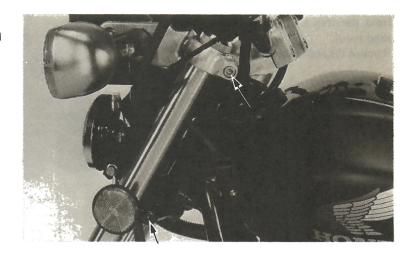


Remove the fork brace.





Loosen the fork upper and lower pinch bolts. • Pull the fork tubes down and out while twisting to remove them.



DISASSEMBLY

Depress the air valve and release front fork air pressure.

CAUTION

- If air pressure is not released before disassembling, the fork cap may become a projectile.
- The cap is also under spring pressure.
 Use care when removing and wear eye and face protection.

Hold the fork tube in a vise with soft jaws or a shop towel and remove the fork tube cap.

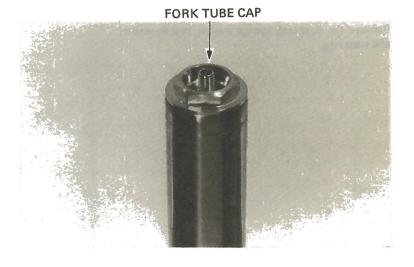
CAUTION

Do not damage the sliding surface.

Remove the collar, washer and fork spring.

Pour the fork fluid out.

Pour the remaining fork fluid out by pumping the fork tube several times.







Hold the fork slider in a vise with soft jaws or a shop towel.

Remove the socket bolt with a hex wrench.

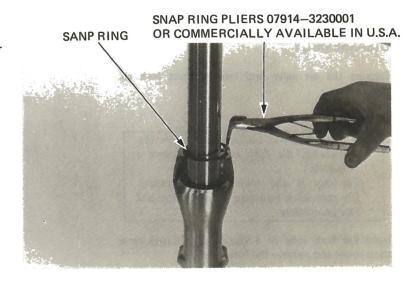
NOTE

Temporarily install the spring and fork bolt if the bolt is difficult to remove.





Remove the dust seal, sponge washer, plastic washer and snap ring.



Pull the fork tube out until resistance from the slider bushing is felt. Then move it in and out, tapping the bushing lightly until the fork tube separates from the slider. The slider bushing will be forced out by the fork tube bushing.

Remove the oil lock piece from inside the slider.



Date of Issue: Sept., 1982

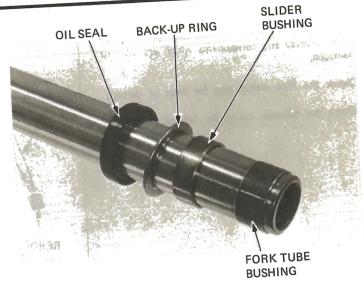
⁴ 14-22



Remove the oil seal, back-up ring and slider bushing from the fork tube.

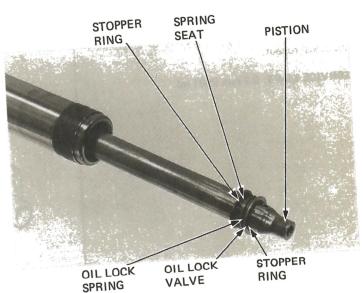
NOTE

Do not remove the fork tube bushing unless it is necessary to replace it with a new one. See inspection on page 14-24.



On the left fork, remove the stopper rings, oil lock valve spring, and spring seat from the piston.

Remove the piston and rebound spring from the fork tube.



INSPECTION

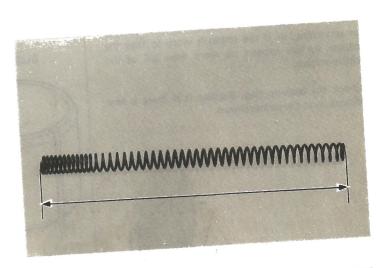
14

FORK SPRING FREE LENGTH

Measure the fork spring free length.

SERVICE LIMIT: 512.4 mm (20.2 in)

Replace the spring if it is shorter than the service limit.

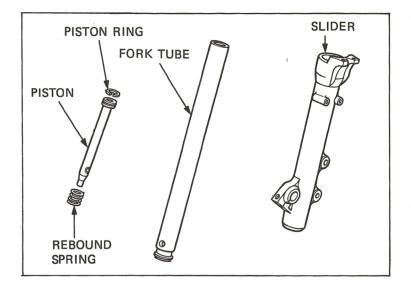




Check the fork tube, fork slider and piston for score marks, scratches, or excessive or abnormal wear. Replace any components which are worn or damaged.

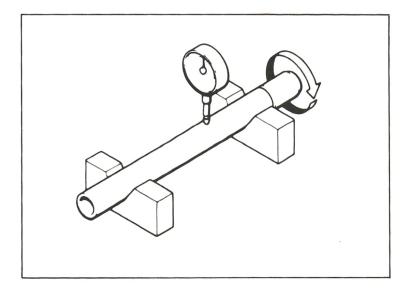
Check the fork piston ring for wear or damage.

Check the rebound spring for fatigue or damage.



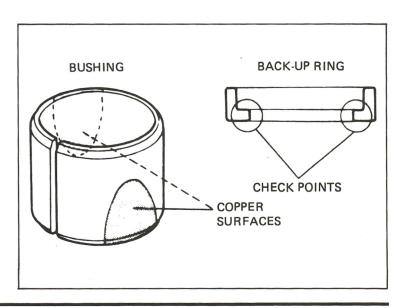
Set the fork tube in V blocks and read the runout. Use 1/2 the total indicator reading to determine the actual runout.

SERVICE LIMIT: 0.2 mm (0.01 in)



Visually inspect the slider and fork tube bushings. Replace the bushings if there is excessive scoring or scratching, or if the teflon is worn so that the copper surface appears on more than 3/4 of the entire surface.

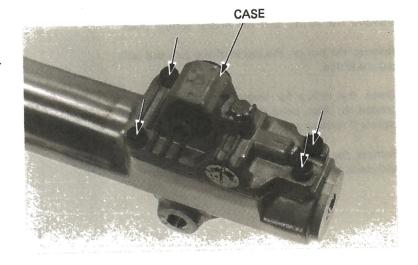
Check the back-up ring. Replace it if there is any distortion at the points shown.





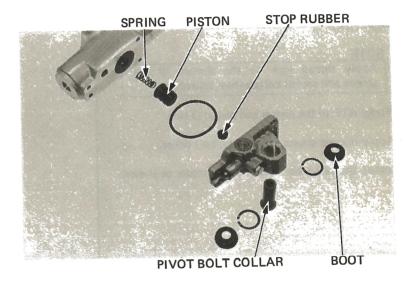
ANTI-DIVE CASE

Remove the four socket bolts and remove the antidive case.

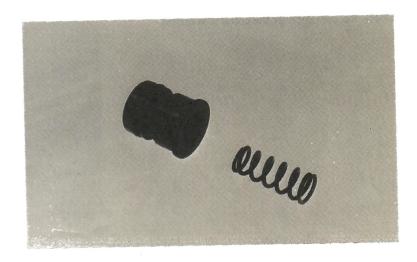


Remove the piston and spring.

Remove the boots, pivot bolt collar and stop rubber.



Check the spring and piston for wear or damage.



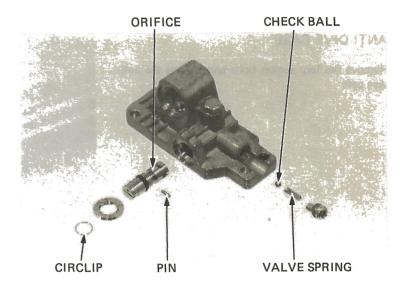


Remove the circlip and the orifice setting plate.

Remove the pin on the inside of the case and pull out the orifice.

Check the orifice for clogging by applying compressed air. Also, check the orifice for damage and replace if necessary.

Remove the check valve setting screw, valve spring and check ball.



Assemble the anti-dive case in the reverse order of disassembly.

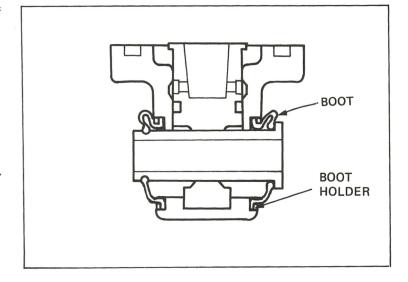
NOTE

Apply thread lock to the threads of the screws and socket bolts before assembly.

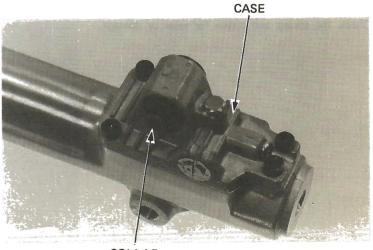
Apply ATF to the piston and piston O-ring.

Apply silicone grease to the pivot bolt collar.

Install the pivot bolt collar boot holder as shown.



Check the operation of the collar and piston.

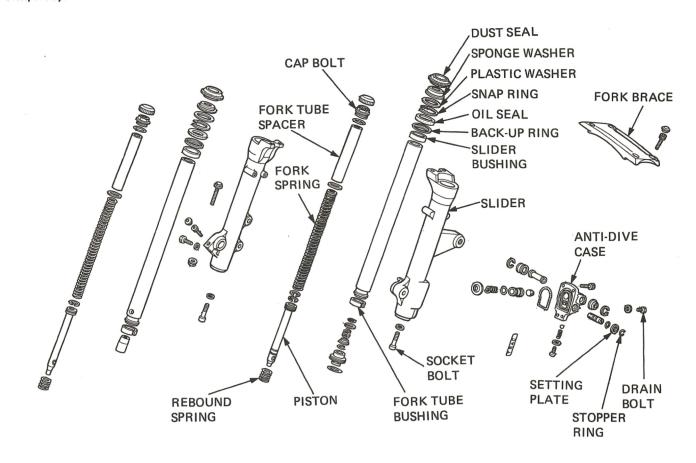


COLLAR



ASSEMBLY

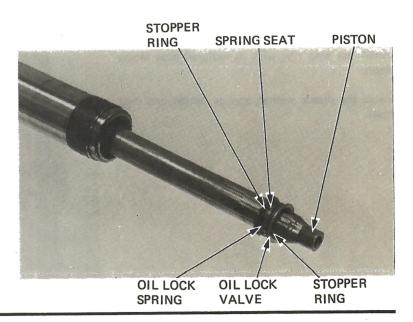
Before assembly, wash all parts with a high flash point or non-flammable solvent and wipe them off completely.



Insert the rebound spring and piston into the fork tube.

On the left fork, install the spring seat, valve spring, oil lock valve and circlip on the piston.

Place the oil lock piece on the end of the piston and insert the fork tube into the slider.





Place the fork slider in a vise with soft jaws or a shop towel.

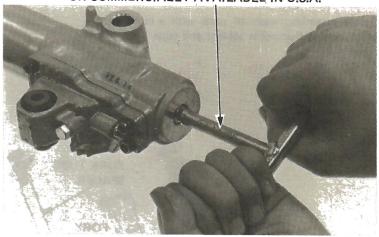
Apply a locking agent to the socket bolt and thread it into the piston. Tighten with a 6 mm hex wrench.

TORQUE: 15-25 N·m (1.5-2.5 kg-m, 11-18 ft-lb)

NOTE

Temporarily install the fork spring and fork cap bolt to tighten the socket bolt.

HEX WRENCH, 6 mm 07917-3230000 OR COMMERCIALLY AVAILABLE IN U.S.A.



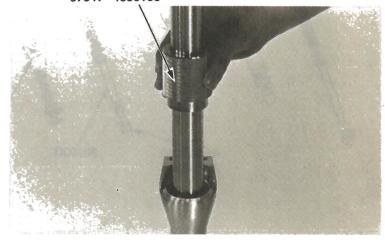
Place the slider bushing over the fork tube and rest it on the slider.

Put the back-up ring and an old bushing or equivalent tool on top.

Drive the new bushing into place with the seal driver and remove the old bushing or equivalent tool.

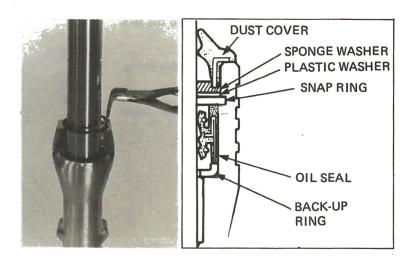
Coat a new oil seal with ATF and install it with the seal markings facing up. Drive the seal in with the seal driver.

FORK SEAL DRIVER 07947—4630100



Install the snap ring with its radiused edge facing down.

Install the plastic washer, sponge washer and dust cover.

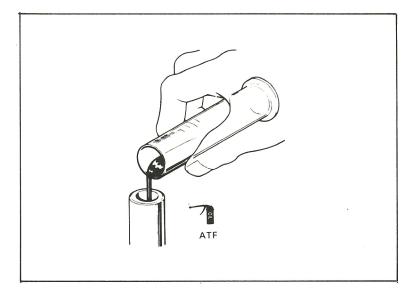




Pour the specified amount of ATF into the fork tube.

CAPACITY:

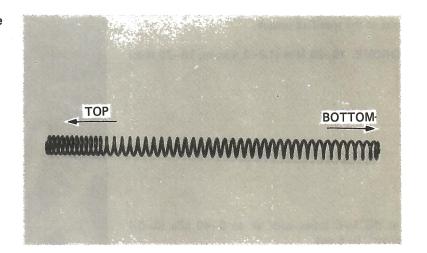
Right fork	450 cc (15.2 oz)
Left fork	465 cc (15.7 oz)



Place the fork spring, washer and collar into the fork tube.

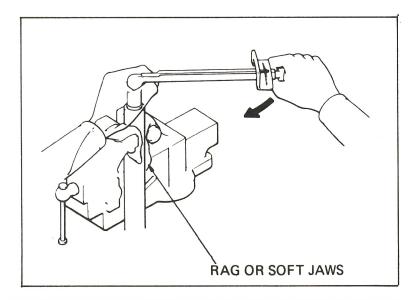
NOTE

Note the spring direction, the tight windings should face toward the top.



Install and torque the fork tube cap.

TORQUE: 15-30 N·m (1.5-3.0 kg·m, 11-22 ft-lb)





INSTALLATION

Install the left front fork with the top of the tube flush with the top of the fork bridge.

Tighten the bottom pinch bolt.

TORQUE: 45-55 N·m (4.5-5.5 kg-m, 33-40 ft-lb)

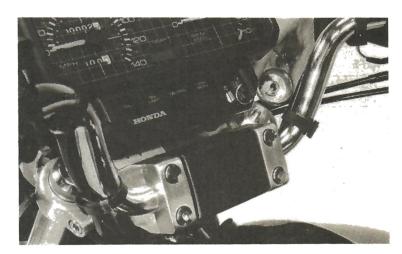
Tighten the top pinch bolt.

TORQUE: 9-13 N·m (0.9-1.3 kg-m, 7-9 ft-lb)

Install the right front fork loosely.
Install the fork brace hex bolts loosely.
Tighten the bottom and top pinch bolts on the right fork tube to the specified torque values above.
Install the front fender and brake caliper.
Install the front wheel (page 14-19).

Install the fork brace and tighten the fork brace bolts to the specified torque.

TORQUE: 18-28 N·m (1.8-2.8 kg-m, 13-20 ft-lb)

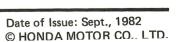


Fill the fork tubes with air to 0-40 kPa $(0-0.4 \text{ kg/cm}^2, 0-6 \text{ psi})$

CAUTION

- Use only a hand operated air pump to fill to fork tubes. Do not use compressed air.
- Maximum pressure is 300 kPa (3 kg/cm², 43 psi). Do not exceed this or fork tube component damage may occur.

With the front brake applied, pump the front forks up and down several times. Place the motorcycle on its center stand. Check the air pressure and adjust if necessary.



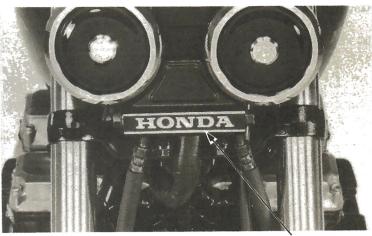


STEERING STEM

REMOVAL

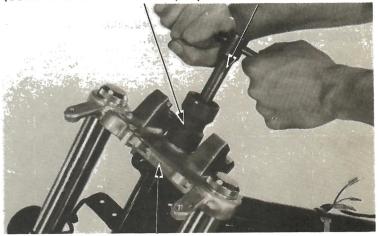
Remove the following parts:

- headlight, headlight case (Page 14-3).
- instruments (Page 14-5).
- handlebar (Page 14-9).
- front wheel (Page 14-14).
- calipers and caliper brackets.
- 3-way joint and horn.



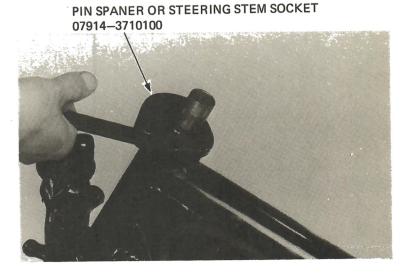
3-WAY JOINT

Remove the steering stem/bridge nut. Remove the front forks (Page 14-20). Remove the fork bridge. LOCK NUT WRENCH, 30 x 32 mm EXTENSION BAR (COMMERCIALY AVAILABLE) (COMMERCIALLY AVAILABLE)



FORK BRIDGE

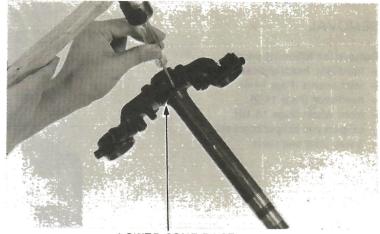
Remove the steering stem adjusting nut, steering stem and steel balls.





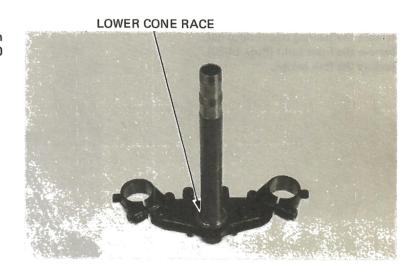
HONDA CB650SC

Remove the lower cone race and dust seal.

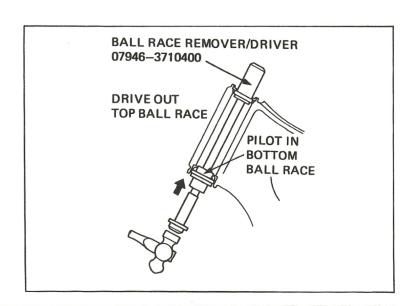


LOWER CONE RACE

Install a dust seal and drive the lower cone race on with the steering stem driver (No. 07946—MB00000 or 07946—3710601 and 07964—MB00200).



Remove the upper ball race with the special tool.



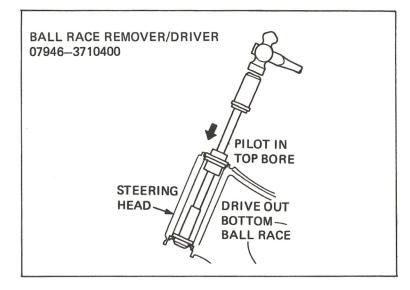




Remove the lower ball race with the special tool.

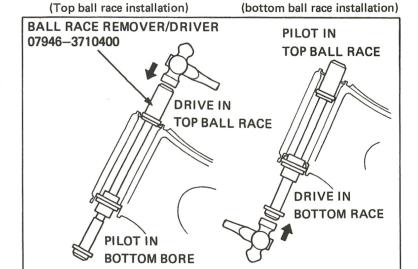
NOTE

If the motorcycle has been involved in an accident, examine the area around the steering head for cracks.



Drive the upper ball race into the steering head with the special tools.

Drive the lower ball race into the steering head.

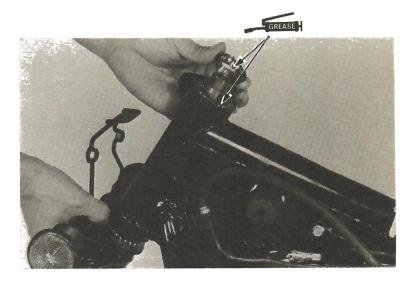


Apply a coat of bearing grease to the upper ball race and install 18 steel balls.

Apply a coat of bearing grease to the lower cone race and install 19 steel balls.

GREASE: MITSUBISHI EH-700 or equivalent, about 5.5 g

Insert the steering stem into the steering head and install the upper cone race and bearing adjustment nut.





Tighten the adjustment nut until snug against the upper cone race. Then, loosen it 1/8 turn.

Check that there is no vertical movement and that the stem rotates freely.

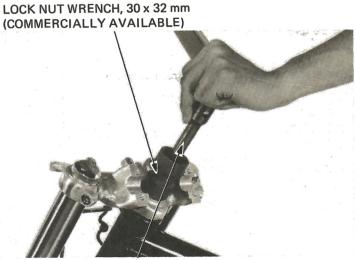


Install the front fork legs. Temporarily hold the front fork legs by tightening the steering stem fork pinch bolts.

Tighten the steering stem nut.

TORQUE: 90-120 N·m (9.0-12:0 kg·m, 65-87 ft-lb)

Install the removed parts in the reverse order of removal.

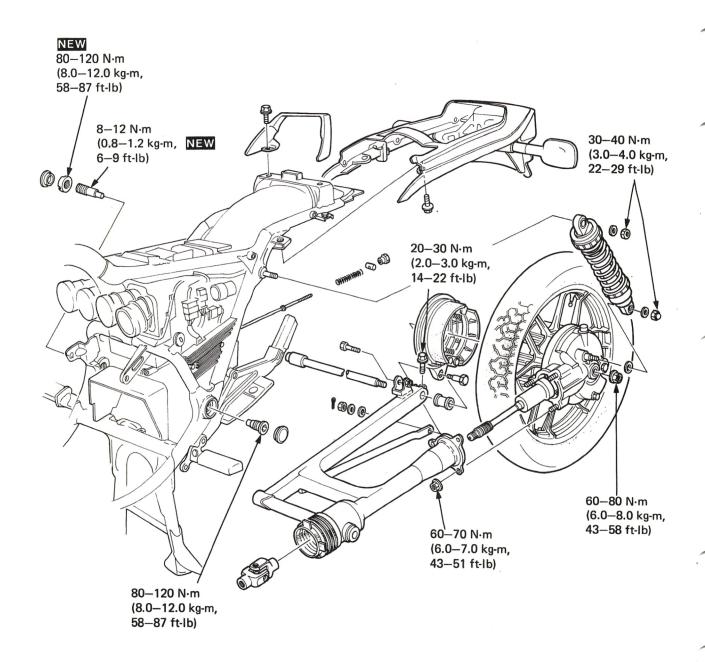


EXTENSION BAR (COMMERCIALLY AVAILABLE)



MEMO







SERVICE INFORMATION 15–1 REAR BRAKE PANEL 15– 7
TROUBLESHOOTING 15–2 SHOCK ABSORBER 15– 9
REAR WHEEL 15–3 SWINGARM 15–15

SERVICE INFORMATION

GENERAL

- The rear wheel uses a tubeless tire. For tubeless tire repairs, refer to the Tubeless Tire Manual.
- Never ride on the rim or try to bend wheel.

SPECIFICATIONS

		STANDARD	SERVICE LIMIT
Axle runout		_	0.2 mm (0.01 in)
Rear wheel rim run out	Radial	_	2.0 mm (0.08 in)
	Axial	_	2.0 mm (0.08 in)
Wheel bearing play		_	0.03 mm (0.001 in)
Shock absorber spring free length		217.6 mm (8.57 in)	213.2 mm (8,40 in)
Brake drum I.D.		160.0-160.3 mm (6.30-6.31 in)	161.0 mm (6.34 in)
Rear brake lining thickness		4.9-5.0 mm (0.19-0.20 in)	2.0 mm (0.08 in)

TORQUE VALUES

TOOLS

Special

Attachment	07967-KC10000
Shock absorber compressor attachment	07959-MB10000
Swingarm lock nut wrench	07908-ME90000
Swingarm bearing remover	07936-4150000 or 07936-3710500
Sliding hammer	07936-3710200
Sliding hammer handle	07936-3710100 or 07741-0010201

Common

07749-0010000
07746-0010300
07746-0040400
07746-0010100
07959-3290001
07746-0050500
07746-0050100

15



TROUBLESHOOTING

Wobble or Vibration in Motorcycle

- 1. Tire pressure incorrect
- 2. Faulty tire
- 3. Bent rim
- 4. Loose wheel bearing
- 5. Swingarm bushing worn

Soft Suspension

- 1. Weak springs
- 2. Shock absorbers improperly adjusted

Hard Suspension

- 1. Shock absorbers improperly adjusted
- 2. Bent shock absorber rod

Suspension Noise

- 1. Loose fasteners
- 2. Worn shocks



REAR WHEEL

REMOVAL

Place the motorcycle on its center stand and loosen the axle nut.

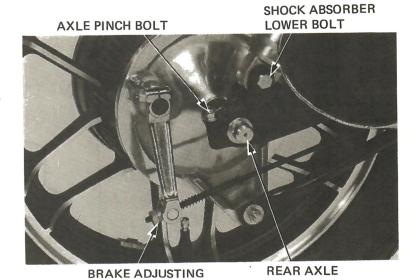


AXLE NUT

Remove the right shock absorber lower bolt.

Remove the brake adjusting nut and the brake rod.

Loosen the axle pinch bolt and remove the rear



NUT

Move the wheel to the right to separate it from the final drive gear case and remove the rear wheel.





DISASSEMBLY

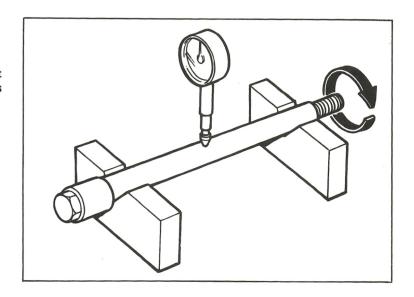
Remove the final driven flange from the hub.



AXLE INSPECTION

Set the axle in V blocks and read the axle runout with a dial indicator. The actual axle runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.2 mm (0.01 in)

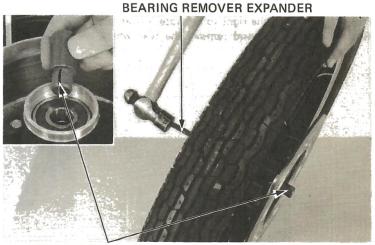


WHEEL BEARINGS

Place the wheel in a truing stand and check the wheel bearing play by rotating the wheel by hand. Replace the bearings with new ones if they are noisy or have excessive play.

SERVICE LIMIT: 0.03 mm (0.001 in)

Remove the wheel bearings and the distance collar from the hub with the special tools.



BEARING REMOVER COLLET, 17 mm 07746-0050500



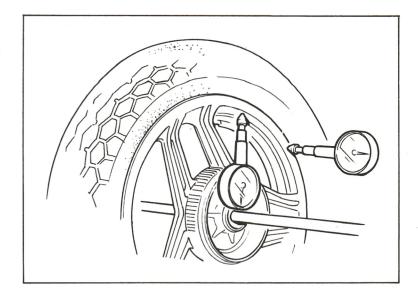
WHEEL RIM RUNOUT

Check the rim for runout by placing the wheel in a truing stand. Spin the wheel slowly, and read the runout using a dial indicator.

SERVICE LIMITS:

RADIAL RUNOUT: 2.0 mm (0.08 in) AXIAL RUNOUT: 2.0 mm (0.08 in)

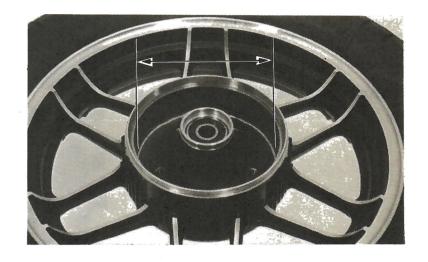
The wheel cannot be serviced and must be replaced if the above limits are exceeded.



BRAKE DRUM I.D.

Measure the brake drum I.D.

SERVICE LIMIT: 161 mm (6.34 in)

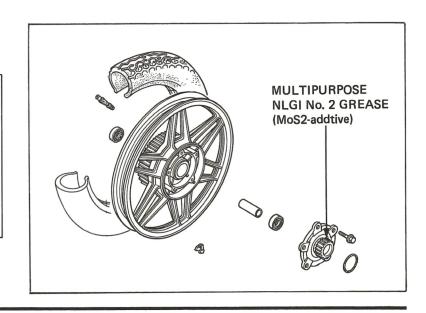


ASSEMBLY

NOTE

Use lithium-based multipurpose grease with MoS2-additive as follows:

- Molykote BR2-S manufactured by Dow Corning, U.S.A.
- Multipurpose M-2 manufactured by Mitsubishi Oil, Japan
- Sta-lube NLGI #2.
- · Other lubricants of equivalent quality.
- The wheel uses a tubeless tire. For tubeless tire repairs, refer to the Tubeless Tire Manual.





Press the distance collar into place from the left side. Drive the left ball bearing in first, then the right ball bearing.

CAUTION

- Drive the bearings in squarely.
- Install the bearings with the sealed end facing out, making sure they are fully seated.

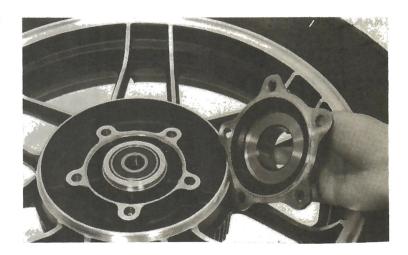


ATTACHMENT, 42 x 47 mm 07746-0010300 PILOT, 17 mm 07746-0040400

Apply a liquid sealant to the mating surface of the final driven flange and the bolt threads.

Tighten the bolts to the specified torque.

TORQUE: 50-60 N·m (5-6 kg-m, 36-43 ft-lb)

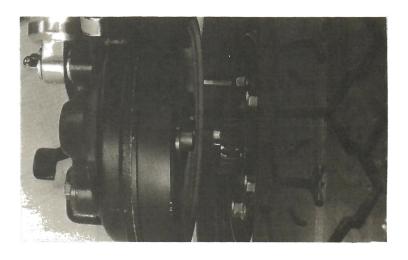


INSTALLATION

Apply Multipurpose NLGI No. 2 Grease (MoS2-additive) to the final driven flange splines and the ring gear engagement splines.

Loosen the final gear case attaching nuts to ease axle installation and to assure proper driven flange alignment.

Engage the rear wheel with the final drive case, marking sure the splines are correctly aligned.





Insert the rear axle from the right side through the swing arm, side collar, brake panel, hub and final drive gear.

Tighten the axle nut.

TORQUE: 60-80 N·m (6.0-8.0 kg·m, 43-58 ft-lb)

Tighten the final gear case attaching nuts.

TORQUE: 60-70 N·m (6.0-7.0 kg·m, 43-51 ft-lb)



AXLE NUT

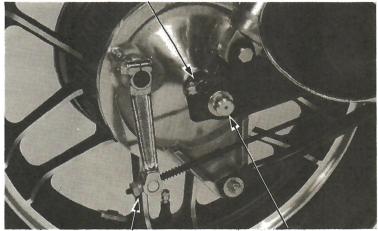
Tighten the axle pinch bolt.

TORQUE: 20-30 N·m (2.0-3.0 kg·m, 14-22 ft-lb)

Place the brake rod through the brake arm pin and install the brake adjusting nut.

Adjust the rear brake (page 3-15).





BRAKE ADJUSTING NUT

REAR AXLE

REAR BRAKE PANEL

Remove the rear wheel (page 15-3). Remove the brake panel from the wheel hob.

LINING THICKNESS INSPECTION

Measure the rear brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)





DISASSEMBLY

Remove the rear brake arm.

Remove the cotter pins and brake shoes.

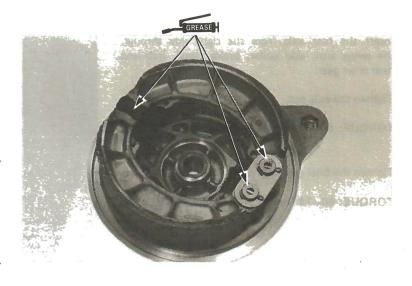
ASSEMBLY

Apply grease to the anchor pins and brake cam.

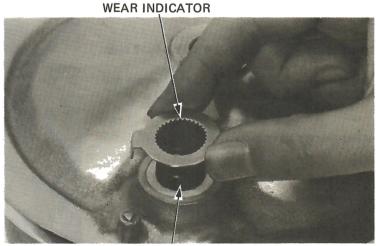
WWARNING

Contaminated brake linings reduce stopping power. Keep grease off the brake linings. Wipe any excess grease off the cam.

Install the brake cam, brake shoes and new cotter pins.



Install the felt seal and wear indicator.

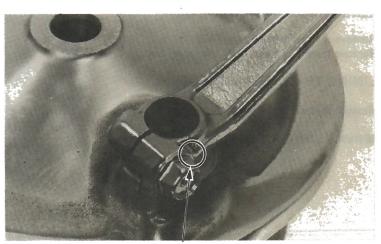


FELT SEAL

Install the brake arm, aligning the punch marks and tighten the brake arm bolt.

TORQUE: 24-30 N·m (2.4-3.0 kg·m, 17-22 ft-lb)

Place the brake panel into the rear wheel hub. Install the rear wheel (page 15-6).



PUNCH MARKS



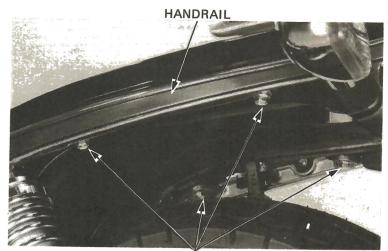
SHOCK ABSORBER

REMOVAL/DISASSEMBLY

NOTE

Remove the shock absorber at a time to faciliate removal and installation.

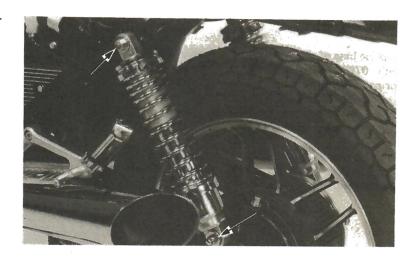
Remove the four handrail mounting bolts and the handrail.



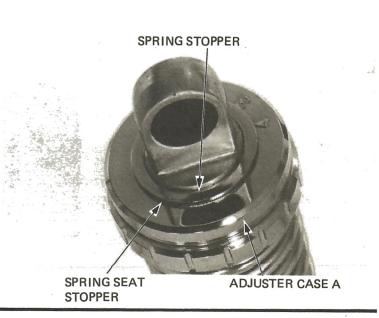
HANDRAIL MOUNTING BOLTS

Remove the shock absorber upper and lower mounts.

Remove the shock absorber.

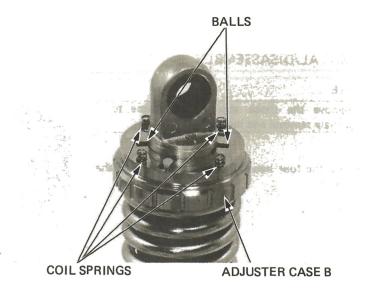


Press down on the spring seat stopper and adjuster case A and remove the spring stopper.





Remove the coil springs, adjuster case B and steel balls.

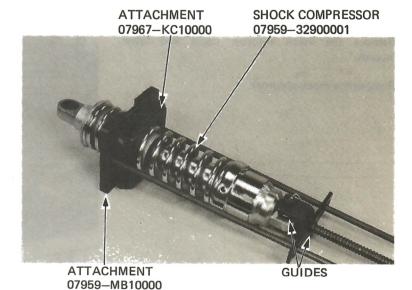


DISASSEMBLY

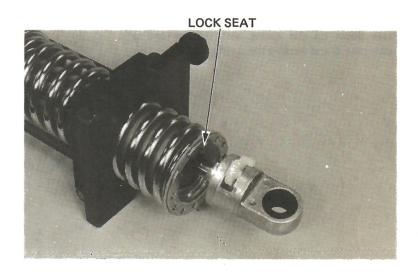
Replace base of shock compressor, 07959—3290001 with 07959—MB10000. Be sure to replace the spring compressor guides with the ones supplied with 07959—MB10000.

Install the attachment onto the spring.

Set the shock in the compressor as shown and compress the spring 30 mm by turning the compressor handle.



Pull the lock seat out of the absorber. Remove the compressor.





SPRING FREE LENGTH

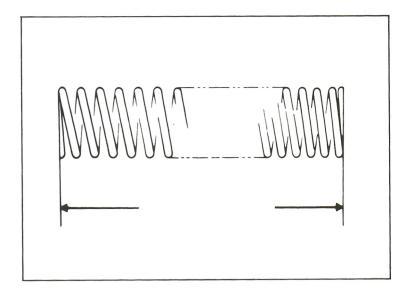
Measure the rear shock absorber spring free length.

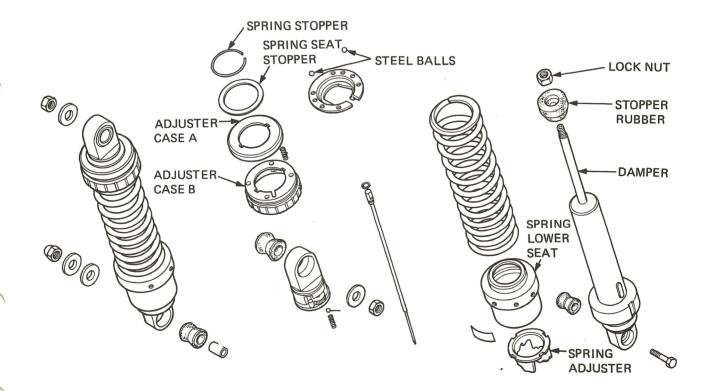
SERVICE LIMIT: 213.2 mm (8.40 in)

ASSEMBLY

NOTE

Install the spring with the tightly wound end facing up.







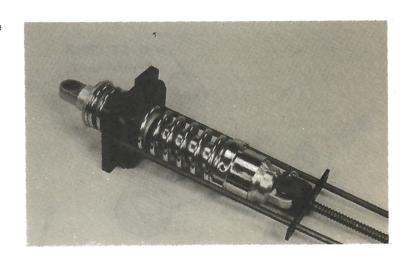
Attach the shock absorber compressor and attachments.

Compress the spring and set the lock seat as shown.

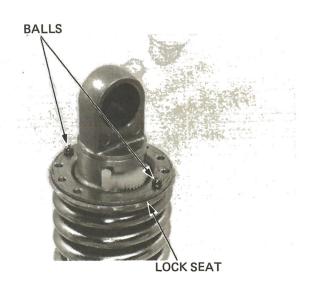


LOCK SEAT

Align the spring seat with the upper joint while releasing the compressor.



Place the steel balls into the lock seat.





Install adjuster case B with the hole on case B aligned with the adjuster lever.

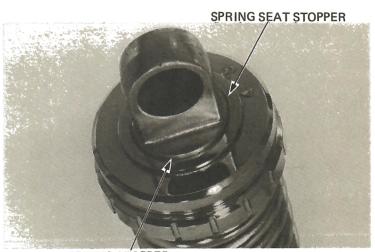


Install the four coil springs.
Install adjuster case A with its cut-out aligned with the cut-out of adjuster case B.



COIL SPRINGS

Install the spring seat stopper and spring stopper.



SPRING STOPPER

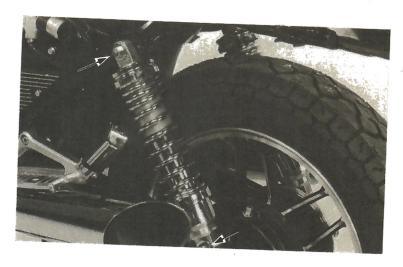


INSTALLATION

Install the shock absorber onto the frame and swing arm.

Tighten the upper and lower mounts.

TORQUE: 30-40 N·m (3.0-4.0 kg·m, 22-29 ft·lb)



Install the handrail with the four bolts.



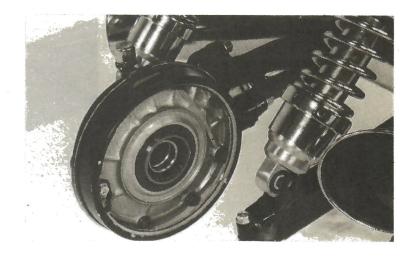


SWINGARM

REMOVAL

Remove the following parts:

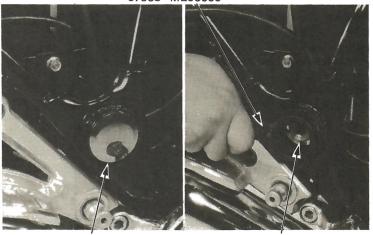
- rear wheel.
- final drive case.
- shock absorbers.



Remove the swingarm pivot caps and loosen the right pivot bolt lock nut.

Remove the right pivot bolt, using the socket bit.

SWINGARM PIVOT LOCK NUT WRENCH 07908-ME90000

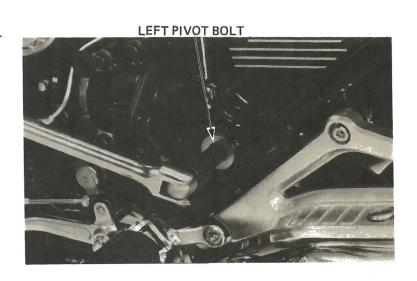


PIVOT CAP

LOCK NUT

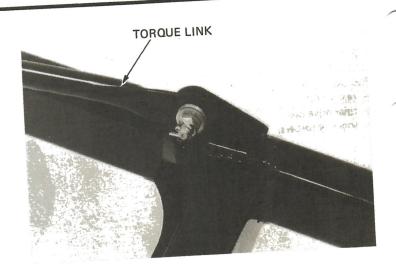
Remove the left pivot bolt and remove the swingarm.

Remove the boot from the swingarm.





Remove the brake torque link from the swingarm.

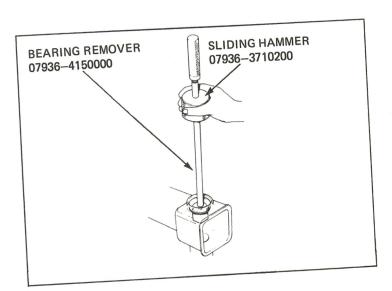


Punch or drill a 13 mm (1/2 in) hole into each grease retainer.

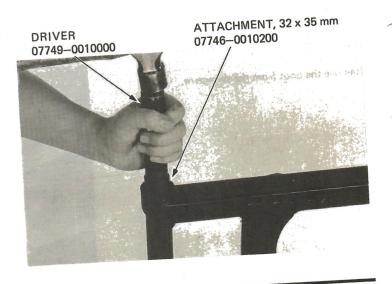
Remove the attachment from the special tool, 07934—3710500. Slide the shaft through the hole and install a 29 mm (O.D.) washer or equivalent attachment onto the shaft. Install the slider hammer and handle.

Remove the race.

Repeat for the other stole.



Install new grease retainer plates and drive new bearing outer races into the swingarm.

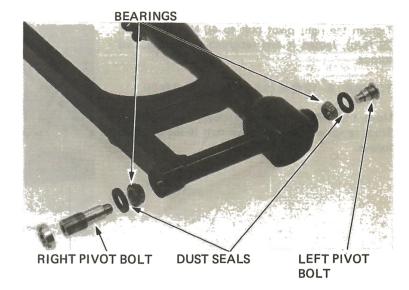




INSTALLATION

Apply grease to the pivot bearings dust seals and pivot bolt tips.

Install the bearings and dust seals.



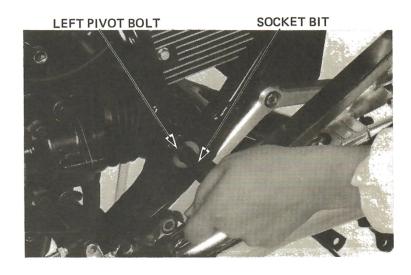
Install the boot onto the swingarm with the 'UP' mark facing up.



Install the swingarm and pivot bolts.

Tighten the left pivot bolt to the specified torque.

TORQUE: 80-120 N·m (8.0-12.0 kg·m, 58-87 ft-lb)

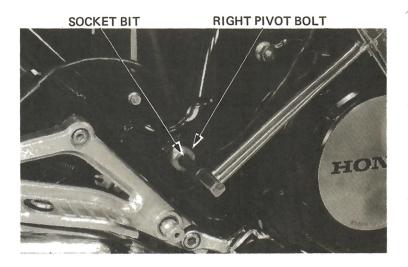




Tighten the right pivot bolt to 40 N·m (4.0 kg·m, 29 ft-lb), loosen it and retighten to the specified torque.

TORQUE: 8-12 N·m (0.8-1.2 N·m, 6-9 ft-lb)

Move the swingarm up and down several times. Then, retighten the right pivot bolt to the specified torque.



Tighten the lock nut while holding the right pivot bolt.

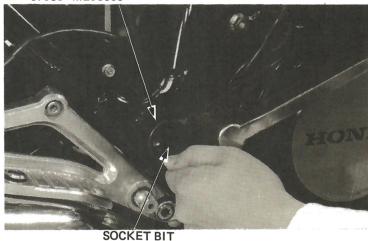
TORQUE: 80-120 N·m

(8.0-12.0 kg-m, 58-87 ft-lb)

Install the following parts:

- shock absorbers.
- final drive case.
- rear wheel.

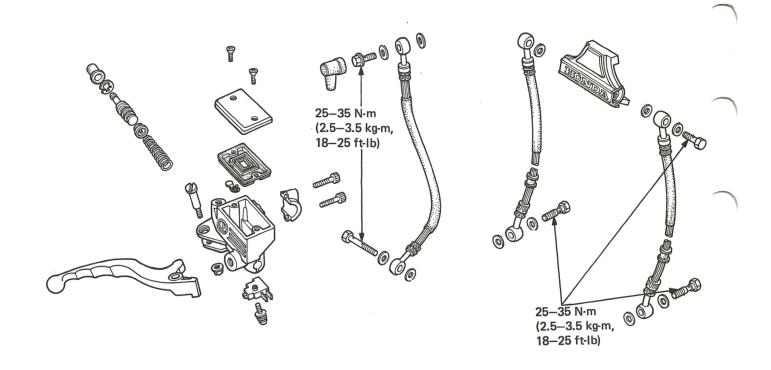
SWINGARM PIVOT LOCK NUT WRENCH 07908-ME90000

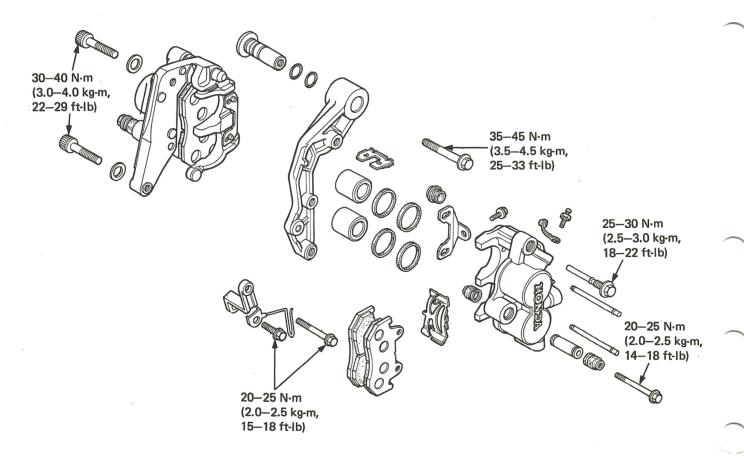




MEMO







16. HYDRAULIC BRAKE

SERVICE INFORMATION	16—1
TROUBLESHOOTING	16–2
BRAKE FLUID REPLACEMENT/AIR BLEEDING	16–3
BRAKE PAD/DISC	16–5
MASTER CYLINDER	16–7
BRAKE CALIPERS	16–10

SERVICE INFORMATION

GENERAL

- The brake calipers can be removed without disconnecting the hydraulic system.
- Bleed the hydraulic system if it is disassembled or if the brake feels spongy.
- Do not allow foreign material to enter the system when filling the reservoir.
- Avoid spilling brake fluid on painted surfaces or instrument lenses, as severe damage can result.
- Always check brake operation before riding the motorcycle.

SPECIFICATIONS

	STANDARD	SERVICE LIMIT	
Front disc thickness	4.8–5.2 mm (0.19–0.20 in) 4.0 mm (0.16 in)		
Front disc runout	_	0.30 mm (0.012 in)	
Front master cylinder I.D.	15.870-15.913 mm (0.6248-0.6265 in)	15.93 mm (0.627 in)	
Front master piston O.D.	15.827-15.854 mm (0.6231-0.6242 in)	15.82 mm (0.623 in)	
Front caliper piston O.D.	31.948-31.998 mm (1.2578-1.2598 in)	31.940 mm (1.2578 in)	
Front caliper cylinder I.D.	32.030-32.080 mm (1.2610-1.2630 in)	32.090 mm (1.2634 in)	

NEW

TORQUE VALUES

Brake hose bolt	25-35 N·m (2.5-3.5 kg·m, 18-25 ft-lb)
Front brake caliper bracket (R)	30-40 N·m (3.0-4.0 kg·m, 22-29 ft-lb)
Front brake caliper bolt	20-25 N·m (2.0-2.5 kg·m, 14-18 ft-lb)
Front brake caliper shaft	25-30 N·m (2.5-3.0 kg·m, 18-22 ft-lb)
Upper mount bolt (L)	35-45 N·m (3.5-4.5 kg·m, 25-33 ft-lb)
Piston pin bolt (L)	20-25 N·m (2.0-2.5 kg·m, 14-18 ft-lb)
Lower mount bolt (L)	20-25 N·m (2.0-2.5 kg-m, 14-18 ft-lb)

16

TOOL

Special Snap ring pliers

07914-3230001





TROUBLESHOOTING

Brake lever action soft or spongy

- 1. Air bubbles in hydraulic system
- 2. Low fluid level
- 3. Hydraulic system leaking

Brake lever action too hard

- 1. Sticking piston(s)
- 2. Clogged hydraulic system
- 3. Pads glazed or worn excessively

Brakes drag

- 1. Hydraulic system sticking
- 2. Sticking piston(s)

Brake grab or pull to one side

- 1. Pads contaminated
- 2. One side of front brake faulty
- 3. Disc or wheel misaligned

Brake chatter or squeal

- 1. Pads contaminated
- 2. Excessive disc runout
- 3. Caliper installed incorrectly
- 4. Disc or wheel misaligned

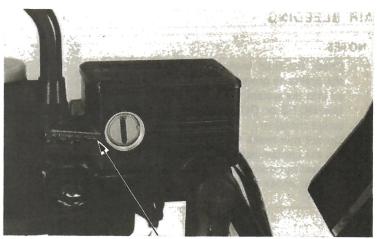


BRAKE FLUID REPLACEMENT/AIR BLEEDING

Check the fluid level with the fluid reservoir parallel to the ground.

CAUTION

- Install the diaphragm on the reservoir when operating the brake lever. Failure to do so will allow brake fluid to squirt out of the reservoir during brake operation.
- Avoid spilling fluid on painted surfaces.
 Place a rag over the fuel tank whenever the system is serviced.



LOWER LEVEL

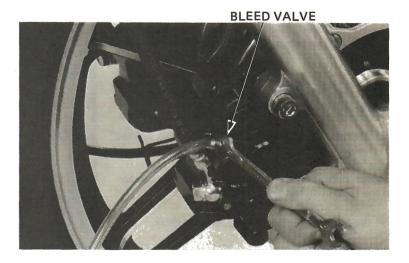
BRAKE FLUID DRAINING

Connect a bleed hose to the bleed valve.

Loosen the caliper bleed valve and pump the brake lever. Stop operating the lever when fluid stops flowing out of the bleed valve.

WARNING

A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.



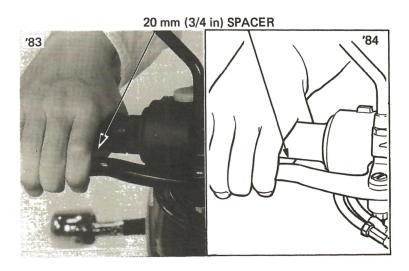
BRAKE FLUID FILLING

NOTE

Do not mix different types of fluid since they are not compatible.

Close the bleed valve, fill the reservoir, and install the diaphragm.

To prevent piston overtravel and brake fluid seepage, keep a 20 mm (3/4 in) spacer between the handlebar grip and lever when bleeding the front brake system. Pump up the system pressure with the lever until there are no air bubbles in the fluid flowing out of the reservoir small hole and lever resistance is felt.

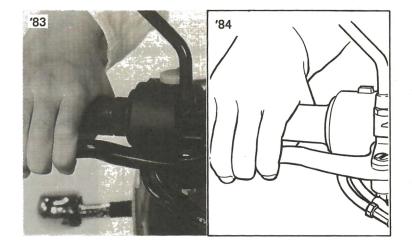




AIR BLEEDING

NOTES

- Check the fluid level often while bleeding the brakes to prevent air from being pumped into the system.
- Use DOT-3 or DOT-4 brake fluid from a sealed container.
- Do not mix brake fluid types and never reuse the contaminated fluid which has been pumped out during brake bleeding, because this will impair the efficiency of the brake system.



 Squeeze the brake lever, open the bleed valve 1/2 turn and then close the valve.

NOTE

Do not release the brake lever until the bleeder valve has been closed again.

Release the brake lever slowly and wait several seconds after it reaches the end of its travel.

Repeat steps 1 and 2 until bubbles cease to appear in the fluid at the end of the hose.

Fill the fluid reservoir to the upper level mark.

WARNING

A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.





BRAKE PAD/DISC

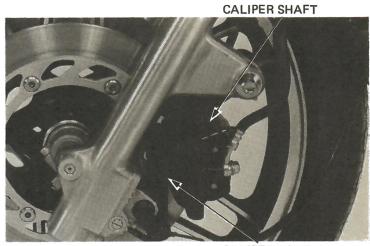
PAD REPLACEMENT

NOTE

Always replace the brake pads as a set to assure even disc pressure.

Remove the pad pin retainer and caliper shaft and caliper bolt.

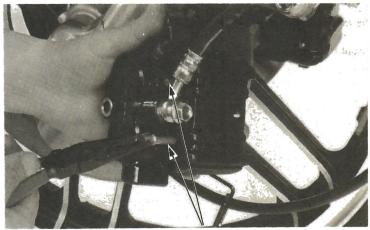
Remove the caliper.



CALIPER BOLT

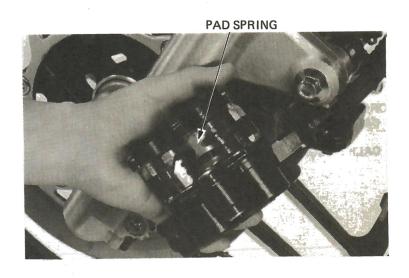
Remove the pad pin retainer and pull the pad pins out of the caliper.

Remove the brake pads.



PAD PINS

Position the pad spring in the caliper as shown and push the caliper pistons in all the way.





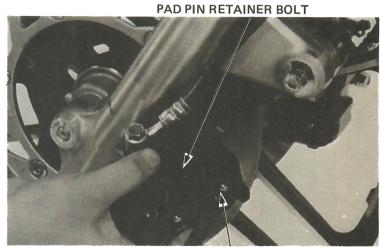
Install the new pads in the caliper.

Install the pad pins, one pad pin first, then install the other pin by pushing the pads against the caliper to depress the pad spring.



Place the pad pin retainer over the pad pins. Push the retainer down to secure the pins.

Install the pad pin retainer bolt.



RETAINER

Install the caliper on the bracket, taking care not to damage the pads.

Install and tighten the caliper bolt and caliper shaft.

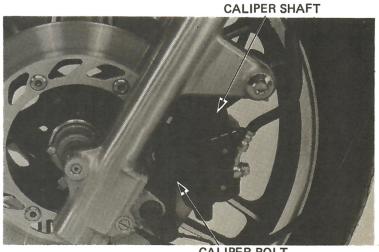
TORQUE:

CALIPER SHAFT: 25-30 N·m (2.5-3.0 kg-m,

18-22 ft-lb)

CALIPER BOLT: 20-25 N·m (2.0-2.5 kg-m,

15-18 ft-lb)



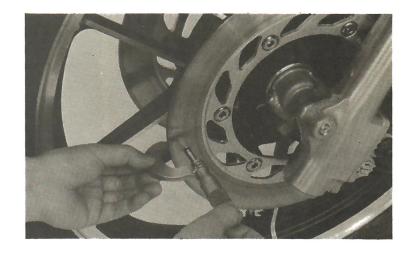
CALIPER BOLT



DISC THICKENESS

Measure the thickness of each disc.

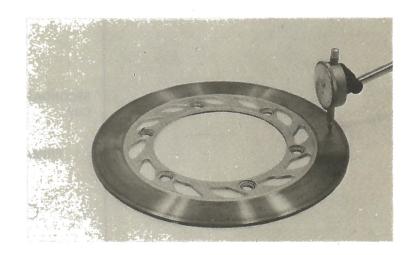
SERVICE LIMIT: 4.0 mm (0.16 in)



BRAKE DISC WARPAGE

Measure the brake disc for warpage.

SERVICE LIMIT: 0.30 mm (0.012 in)



MASTER CYLINDER

DISASSEMBLY

Drain brake fluid from the hydraulic system. Remove the brake lever and rear view mirror from the master cylinder. Disconnect the brake hose.

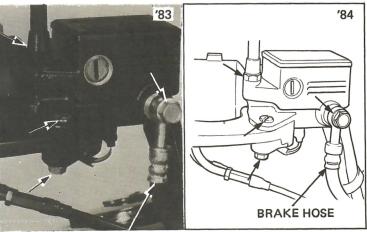
CAUTION

Avoid spilling brake fluid on painted surfaces. Place a rag over the fuel tank whenever the brake system is serviced.

NOTE

When removing the oil hose bolt, cover the end of the hose to prevent contamination. Secure the hose to prevent fluid from leaking out.

Remove the master cylinder.



BRAKE HOSE



Remove the piston boot and the circlip from the master cylinder body.

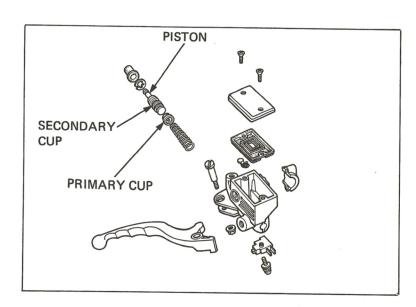
Remove the secondary cup and piston. Then remove the primary cup and spring.

Remove the brake light switch from the master cylinder body, if necessary.

Clean the inside of the master cylinder and reservoir with brake fluid.



SNAP RING PLIERS 07914-3230001

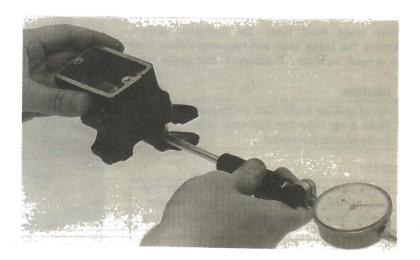


INSPECTION

Check the master cylinder for scores, scratches or nicks.

Measure the master cylinder I.D.

SERVICE LIMIT: 15.93 mm (0.627 in)

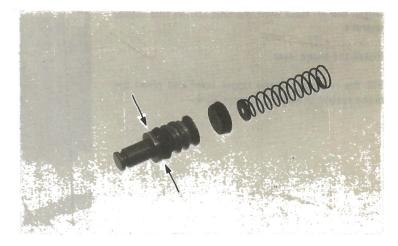




Measure the master piston O.D.

SERVICE LIMIT: 15.82 mm (0.623 in)

Check the primary and secondary cups for damage before assembly.



ASSEMBLY

CAUTION

Handle the master cylinder piston, cylinder and spring as a set.

Assemble the master cylinder. Coat all parts with clean brake fluid before assembly. Install the spring and primary cup together.

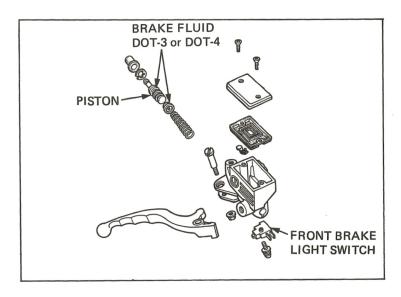
Dip the piston cup in brake fluid before assembly.

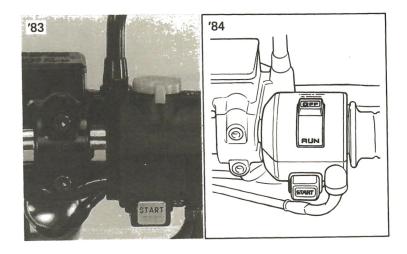
CAUTION

When installing the cups, do not allow the lips to turn inside out. Be certain the circlip is seated firmly in the groove.

Install the piston, clip and boot.

Place the master cylinder on the handlebar and install the holder with two mounting bolts. Tighten the top bolt first.



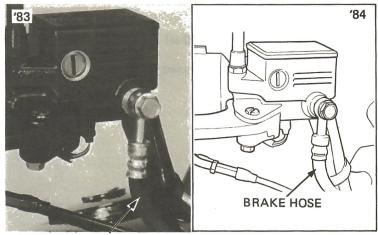




Install the oil hose with the bolt and its two sealing washers.

Install the brake lever.

Fill the reservoir to the upper level and bleed the brake system according to page 16-4.



BRAKE HOSE

BRAKE CALIPERS

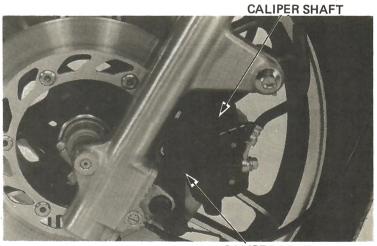
REMOVAL

Place a clean container under the caliper and disconnect the brake hose from the caliper.

CAUTION

Avoid spilling brake fluid on painted surfaces.

Remove the caliper bolt and caliper shaft.

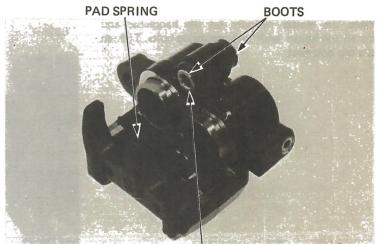


CALIPER BOLT

DISASSEMBLY

Remove the pads and pad spring.

Remove the caliper pivot collar and boots.



PIVOT COLLAR



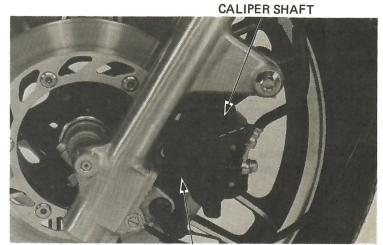


Install the caliper shaft.

TORQUE: 25-30 N·m (2.5-3.0 kg-m, 18-22 ft-lb)

Install the caliper bolt.

TORQUE: 20-25 N·m (2.0-2.5 kg-m, 14-18 ft-lb)



CALIPER BOLT

Push the piston seals in and lift them out, then discard them.

Clean the oil seal grooves with brake fluid.

CAUTION

Be careful not to damage the piston sliding surfaces.



PISTON INSPECTION

Check the pistons for scoring, scratches or other faults. Measure the piston diameter with a micrometer.

SERVICE LIMIT: 30.14 mm (1.187 in)





If necessary, apply compressed air to the caliper fluid inlet to get the piston out. Place a shop rag under the caliper to cushion the piston when it is expelled. Use the air in short spurts.

WARNING

Do not bring the nozzle too close to the inlet.

Examine the pistons and cylinders for scoring, scratches or other damage and replace if necessary.



ASSEMBLY

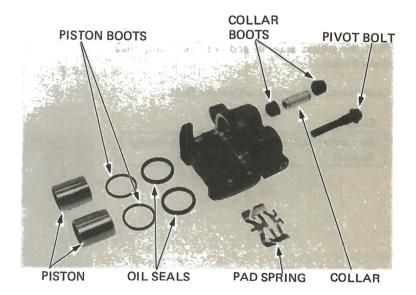
If the piston boots are hardened or deteriorated, replace them with new ones. The piston seals must be replaced with new ones whenever they are removed.

Coat the seals with silicone grease or brake fluid before assembly.

Install the pistons with the dished ends toward the pads. Then install the piston boots.

Install the collar boots and collar making sure that the boots are seated in the collar and caliper grooves properly.

Install the pad spring and pads.



INSTALLATION

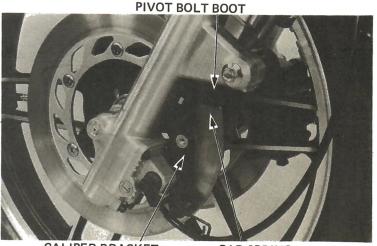
Install the pad spring on the caliper bracket as shown.

Inspect the condition of the caliper pivot bolt boot. Apply silicone grease or brake fluid to the caliper pivot bolt.

Install the caliper assembly over the brake disc so that the disc is positioned between the pads.

CAUTION

Be careful not to damage the pads.



CALIPER BRACKET

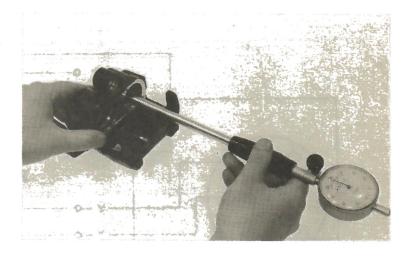
PAD SPRING



CYLINDER INSPECTION

Check the caliper cylinder for scoring, scratches or other faults. Measure the caliper cylinder bore.

SERVICE LIMIT: 30.29 mm (1.193 in)



FRONT CALIPER BRACKET DISASSEMBLY

On the right caliper bracket, remove the two caliper bracket mounting bolts and remove the bracket.

On the left caliper bracket, remove the upper and lower mount bolts and the piston pin bolt. Remove the pivot pin and the caliper bracket. Remove the boot and pad spring from the caliper bracket, making sure that they are in good condition.



PISTON PIN BOLT

LOWER MOUNT BOLT

FRONT CALIPER BRACKET ASSEMBLY

Install the boot and pad spring.
Attach the caliper bracket to the front fork.

(LEFT) TORQUE:

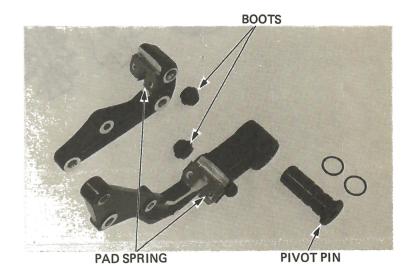
UPPER MOUNT BOLT:

35-45 N·m (3.5-4.5 kg·m, 25-32 ft-lb) PISTON PIN BOLT:

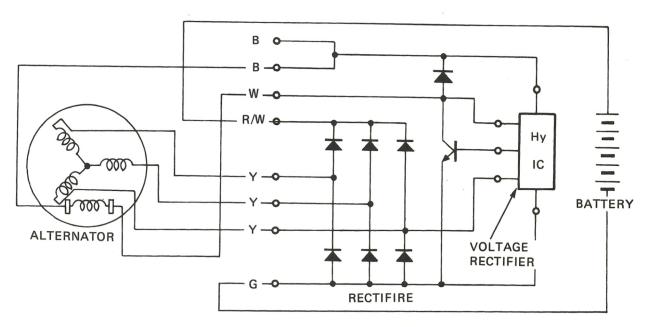
20-25 N·m (2.0-2.5 kg·m, 14-18 ft-lb) LOWER MOUNT BOLT:

20-25 N·m (2.0-2.5 kg·m, 14-18 ft-lb) (RIGHT)

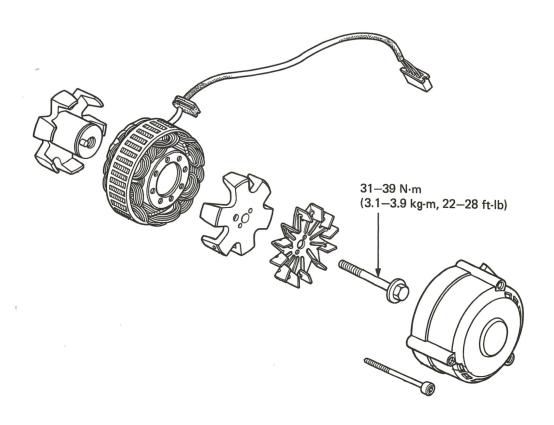
CALIPER BRACKET MOUNT BOLT: 30-40 N·m (3.0-4.0 kg·m, 22-29 ft-lb)







BATTERY CHARGING SYSTEM





17. BATTERY/CHARGING SYSTEM

SERVICE INFORMATION	17–1
TROUBLESHOOTING	17–2
BATTERY	17–3
CHARGING SYSTEM	17–4
ALTERNATOR REMOVAL/INSTALLATION	17–5
VOLTAGE REGULATOR/RECTIFIER	17–8

SERVICE INFORMATION

GENERAL

- · Battery fluid level should be checked regularly. Fill with distilled water when necessary.
- Quick charge a battery only in an emergency. Slow-charging is preferred. Remove the battery from the motorcycle, disconnect the battery cables.

WWARNING

Do not smoke, and keep flames away from a charging battery. The gas produced by a battery will explode if a flame or spark is brought near.

· All charging system components can be tested on the motorcycle.

SPECIFICATIONS

Battery	Capacity	12V 1	12V 12 AH	
	Specific gravity	1.270—1.290	/20°C (68°F)	
	Charging rate	1.2 amperes	1.2 amperes maximum	
Alternator	Capacity	2400 rpm	6000 rpm	
		12.5 A min (No load)	20A min (No load)	
Voltage regu	lator	Transistorized	Transistorized non-adjustable	

TOOLS

Common Rotor puller

07933-2160000

17



TROUBLESHOOTING

No power - key turned on:

- 1. Dead battery
 - Low fluid level
 - Low specific gravity
 - Charging system failure
- 2. Disconnected battery cable
- 3. Main fuse burned out
- 4. Faulty ignition switch

Low power - key turned on:

- 1. Weak battery
 - Low fluid level
 - Low specific gravity
 - Charging system failure
- 2. Loose battery connection

Low power — engine running:

- 1. Battery undercharged
 - Low fluid level
 - One or more dead cells
- 2. Charging system failure

Intermittent power:

- 1. Loose battery connection
- 2. Loose charging system connection
- 3. Loose starting system connection
- 4. Loose connection or short circuit in ignition system
- Loose connection or short circuit in lighting system

Charging system failure:

- 1. Loose, broken, or shorted wire or connection
- 2. Faulty voltage regulator
- 3. Faulty silicon rectifier
- 4. Faulty alternator



BATTERY

REMOVAL

Remove the seat and the right side cover.

Disconnect the battery cables; first the negative (—) cable and then the positive (+) cable.
Remove the battery holder plate and battery.

NOTE

On installation, make sure that the secondary ground cable is making ground contact.

TESTING SPECIFIC GRAVITY

Test each cell with a hydrometer.

SPECIFIC GRAVITY: (20°C, 68°F)

1.270 — 1.290	Fully charged	
Below 1.260	Undercharged	

NOTES

- The battery must be recharged if the specific gravity is below 1,230.
- The specific gravity varies with the temperature as shown in the accompanying table
- Replace the battery if sulfation is evident or if the space below the cell plates is filled with sediment,

W WARNING

The battery contains sulfuric acid. Avoid contact with skin, eyes, or clothing.

Antidote: Flush with water and get prompt medical attention.

BATTERY CHARGING

Connect the charger positive (+) cable to the battery positive (+) terminal.

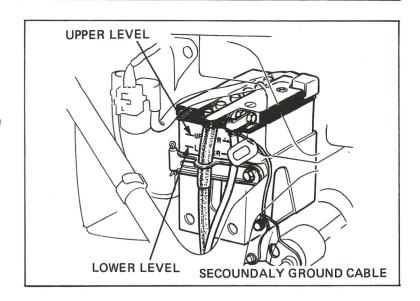
Connect the charger negative (—) cable to the battery negative (—) terminal.

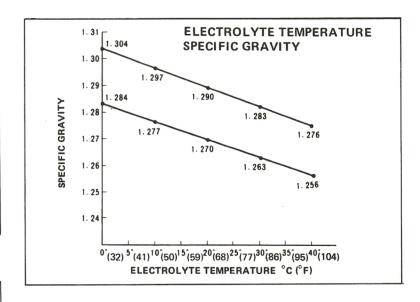
Charging current:

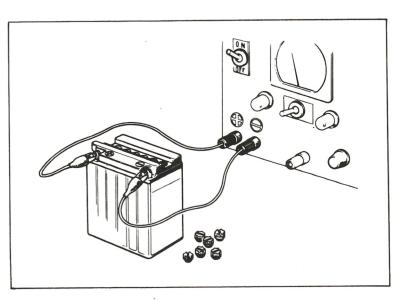
1.2 amperes max.

Charging:

Charge the battery until specific gravity is 1.270 – 1.290 at 20°C (68°F).









WARNING

- Before charging a battery, remove the cap from each cell.
- Keep flames and sparks away from a charging battery.
- Turn power ON/OFF at the charger, not at the battery terminals.
- Discontinue charging if the electrolyte temperature exceeds 45°C (113°F).

CAUTION

Quick-charging should only be done in an emergency; slow-charging is preferred.

After installing the battery, coat the terminals with clean grease.

CAUTION

Route the breather tube as shown on the battery caution label.

CHARGING SYSTEM

CHARGING OUTPUT TEST

NOTE

Be sure to use a fully charged battery to perform this test.

Connect a 20V voltmeter between the positive cable and a frame ground, and a 20A ammeter between the cable and the starter relay terminal.

Start the engine and allow it to warm up for 10 minutes at 2000—2100 rpm.

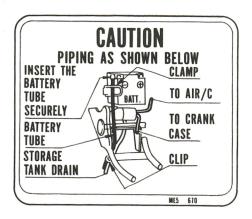
Allow the voltage to stabilize at 14-15 volts, then check amperage output:

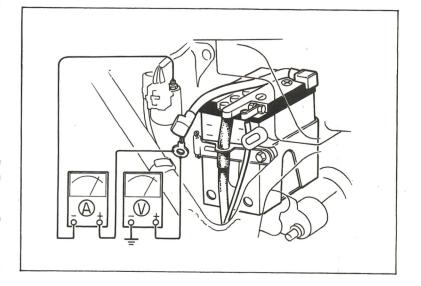
'83 STATOR

RPM	Amperage Output	
2500	2 amps	
2000-2100	0 ± 1 amp	
1500	-5 ± 1 amp	
1000	-10 ± 1 amp	

'84 STATOR

RPM	Amperage Output
2500	2 amps
1700—1800	0 ± 1 amp
1500	−3 ± 1 amp
1000	−9 ± 1 amp



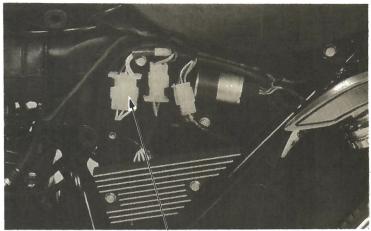




ALTERNATOR REMOVAL/INSTALLATION

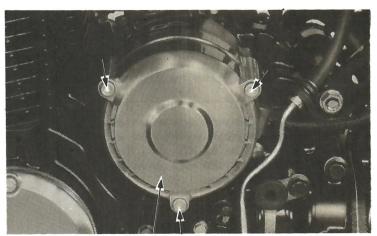
INSTALLATION

Remove the frame left side cover. Disconnect the alternator coupler.



ALTERNATOR COUPLER

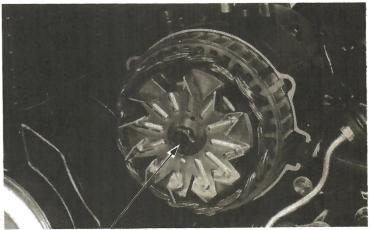
Remove the alternator cover by loosening three bolts.



ALTERNATOR COVER

Shift the transmission into gear and apply the rear brake,

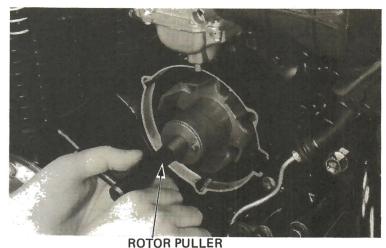
Remove the alternator rotor bolt.



ROTOR BOLT



Remove the alternator rotor while applying the rear brake.



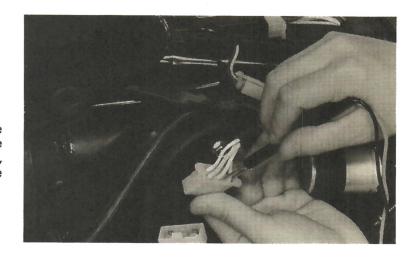
......

STATOR COIL CONTINUITY TEST

NOTE

It is not necessary to remove the stator to make this test.

Disconnect the 6-pin connector and measure the resistance between the yellow wires on the wire harness side: It should be 0.4–0.6 ohms. Now, measure the resistance between each yellow wire and ground: it should be infinite.



ROTOR COIL CONTINUITY TEST

Measure the resistance between the black and white wires: it should be 4-6 ohms.

Measure the resistance between the black wire and ground: it should be infinite.

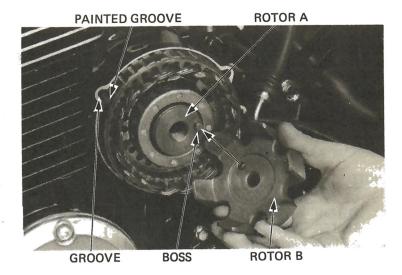




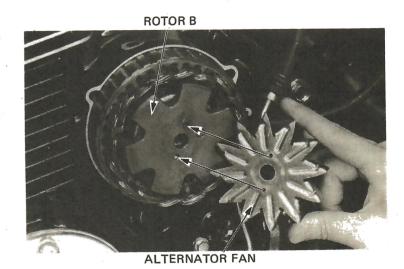
Install alternator rotor A.

Install the alternator assembly with the painted groove on the stator coil aligned with upper left groove for the alternator cover mounting bolts.

Install rotor B with its hole aligned with the boss on the rotor A.



Install the alternator fan with its holes aligned with the pins on rotor B.



Install and tighten the alternator bolt to the specified torque.

TORQUE: 31-39 N·m (3.1-3.9 kg·m, 22-28 ft-lb)

Install the alternator cover.





VOLTAGE REGULATOR/RECTIFIER

REGULATOR/RECTIFIER PERFORMANCE TEST

Disconnect the two regulator/rectifier couplers.

Check the resistances between the leads with an ohmmeter. If the resistance is out of the specifications, replace the regulator rectifier.

NOTE

- · Use a SANWA [SP-10D] or KOWA [TH-5H] tester, or a KOWA DIGITAL TESTER [KS-AHM-32-CO3]. These are positive ground testers.
- The regulator/rectifier has a semi-conductor, and if a different tester is used the test results will be out of specification.

RECTIFIER

Check the resistance between the leads with an ohmmeter.

RESISTANCE IN ONE DIRECTION OF CURRENT:

Green and any yellow:

 $5-40 \Omega$

Red/white and any yellow: 5–40 Ω

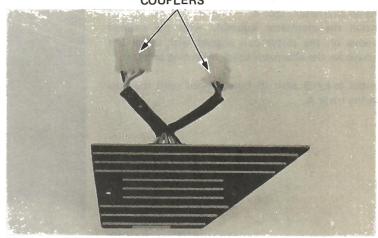
RESISTANCE IN REVERSE DIRECTION:

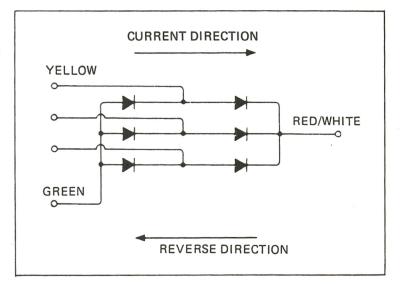
Red/white and any yellow: 2000 Ω min.

Green and any yellow:

2000 Ω min.







With all components reconnected, start the engine. At the 4-pin regulator/rectifier connector, insert the positive probe of a voltmeter into the black wire (on the harness side) and connect the negative probe to ground.

Increase the engine speed to 2500 RPM and watch the voltmeter: voltage should stabilize at 14-15 volts.

If the voltage is not as specified, replace the regulator/rectifier and retest.



18. IGNITION SYSTEM

SERVICE INFORMATION	18–1
TROUBLESHOOTING	18–2
IGNITION COIL	18–3
TRANSISTORIZED IGNITION SYSTEM (Pulse Generato, Spark Unit)	18–4

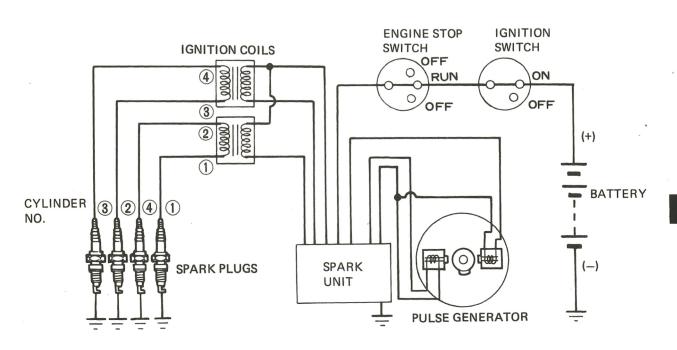
SERVICE INFORMATION

GENERAL

A transistorized ignition system is used and it cannot be adjusted.

SPECIFICATIONS

ND X24EPR-U9, X22EPR-U9, X27EPR-U9			U9, X27EPR-U9
Spark plug	NGK DPR8EA-9, DPR7EA-9, DPR9EA-9		9, DPR9EA-9
Spark plug gap		0.8 - 0.9 mm (0.031 - 0.035 in)	
Ignition timing		At idle min ⁻¹ (rpm)	10° (BTDC)
		Full advance/min ⁻¹ (rpm)	32° BTDC/3,000
Ignition coil		3-point spark test	8 mm (1/4 in) minimum



18



TROUBLESHOOTING

NOTE

The ignition system has two sub-systems; one for the No. 1 and No. 4 cylinders and one for No. 2 and No. 3 cylinders. Determine which sub-system is faulty, then refer to the charts below.

Engine cranks but will not start

- Engine stop switch OFF
- No spark at plugs.
- Faulty transistorized spark unit.
- Faulty pulse generator

No spark at plug

- Engine stop switch OFF
- Poorly connected, broken or shorted wires.
 - Between ignition switch and engine stop switch.
 - Between spark unit and engine stop switch.
 - Between spark unit and ignition coil.
 - Between ignition coil and plug.
 - Between spark unit and pulse generator.
- Faulty ignition coil.
- Faulty ignition switch.
- Faulty spark unit.
- Faulty pulse generator.

Engine starts but runs poorly

- Ignition primary circuit
 - Faulty ignition coil
 - Loose or bare wire
 - Intermittent short circuit
- Secondary circuit
 - Faulty plug
 - Faulty spark plug wire

Timing advance incorrect

- Centrifugal advancer faulty
- Faulty spark unit



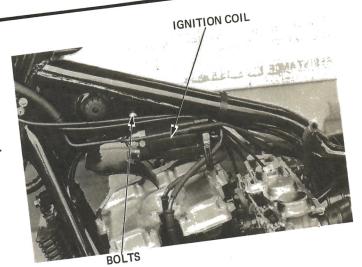
IGNITION SYSTEM

IGNITION COIL

REMOVAL

Remove the fuel tank and disconnect the ignition coil wire leads.

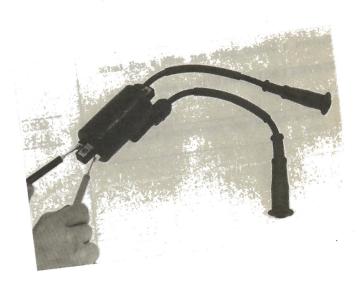
Remove the coils by removing the attaching bolts.



CONTINUITY TEST

Measure the primary coil resistance.

RESISTANCE: 2.8 ohms



Measure the secondary coil resistance with the spark plug caps in place.

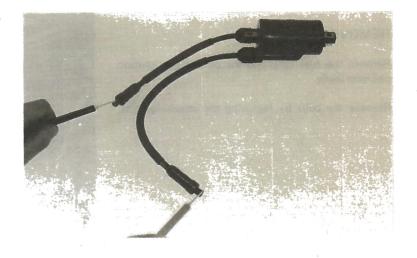
RESISTANCE: 21-28 k ohms





Remove the spark plug caps and measure the secondary coil resistance.

RESISTANCE 13.6 - 15.5 ohms



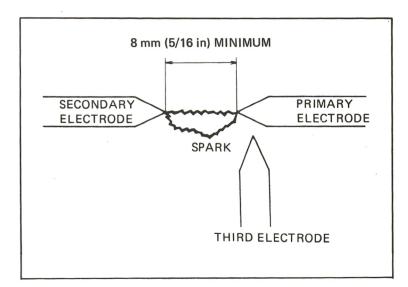
PERFORMANCE TEST

Perform a 3-point spark test with a coil tester.

SERVICE LIMIT: 8 mm (5/16 in) min.

NOTE

Follow the coil tester manufacturer's instructions.



TRANSISTORIZED IGNITION SYSTEM

PULSE GENERATOR TEST

Remove the seat.

Disconnect the pulse generator coupler and measure the coil resistance.

RESISTANCE: 330 ± 10 % ohms

Between the white and yellow leads (2, 3 cylinders) and between the white and blue leads (1, 4 cylinders)





PULSE GENERATOR REPLACEMENT

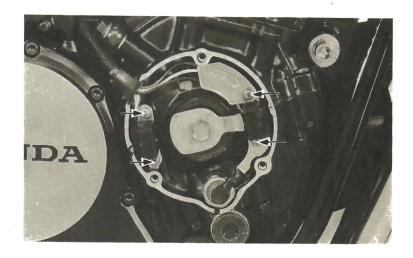
Remove the pulse generator cover.





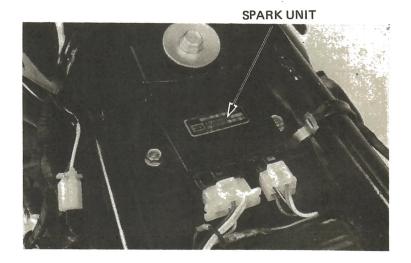
Remove the pulse generator mounting bolts and pulse generators.

Install new pulse generators.
Install the pulse generator cover.
Recheck the ignition timing (Page 3-12).



SPARK UNIT

If the pulse generators, ignition coils and wiring are good, and the ignition timing is not within specification; replace the spark units with new ones and recheck the ignition timing.





MEMO

19. ELECTRIC STARTER

SERVICE INFORMATION TROUBLESHOOTING STARTER MOTOR STARTER RELAY SWITCH 19—1 19—1

19-2

19–5

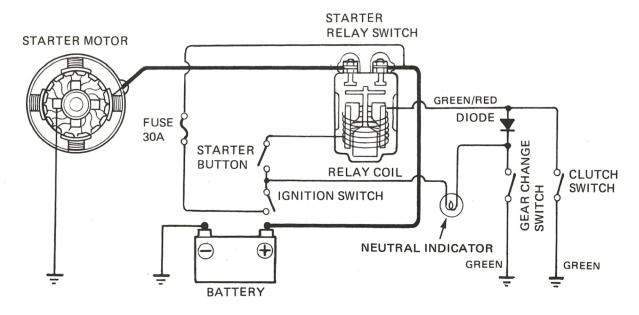
SERVICE INFORMATION

GENERAL

The starter motor can be removed with the engine in the frame.

SPECIFICATIONS

		STANDARD	SERVICE LIMIT
	Brush spring tension	800 ± 120 g (28.2 ± 4.2 oz)	680 g (24.0 oz)
Starter motor	Brush length	12.0 - 13.0 mm (0.47 - 0.51 in)	6.5 mm (0.26 in)



TROUBLESHOOTING

Starter motor will not turn

- Battery discharged
- Faulty ignition switch
- Faulty starter switch
- Faulty neutral switch
- Faulty starter relay switch
- Loosen or disconnected wire or cable
- Neutral diode open

Starter motor turns engine slowly

- Low specific gravity
- Excessive resistance in circuit
- Binding in starter motor

Starter motor turns, but engine does not turn

- Faulty starter clutch
- Faulty starter motor gears
- Faulty starter motor or idle gear

Starter motor and engine turns, but engine does not start

- Faulty ignition system
- Engine problems

19



STARTER MOTOR

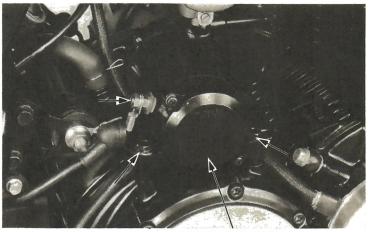
REMOVAL

WARNING

With the ignition switch OFF, remove the negative cable at the battery before servicing the starter motor.

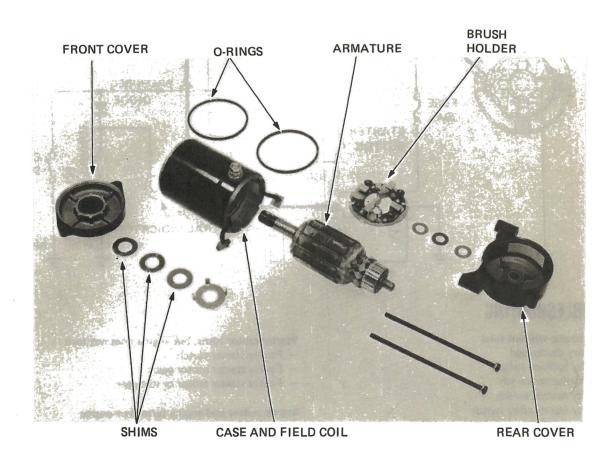
Remove the starter cable from the starter motor.

Remove the bolts and starter motor.



STARTER MOTOR

STARTER MOTOR DISASSEMBLY





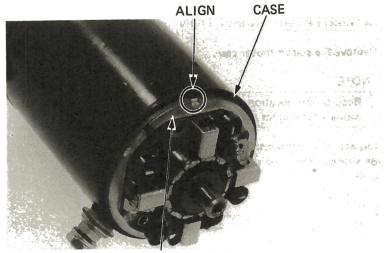
FIELD COIL INSPECTION

Check for continuity from the cable terminal to the motor case and from the cable terminal to the brush wire. Replace the starter motor if the field coil is not continuous or if it is shorted to the motor case.



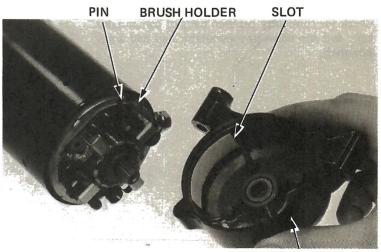
ASSEMBLY/INSTALLATION

Assemble the starter motor. Align the case notch with the brush holder pin.



BRUSH HOLDER

Install the rear cover aligning its slot with the brush holder pin.



REAR BRACKET



BRUSH INSPECTION

Remove the starter motor case screws.

Inspect the brushes and measure the brush length.

Measure brush spring tension with a spring scale.

SERVICE LIMITS:

Brush length:

6.5 mm (0.26 in)

Brush spring tension: 680 g (24.0 oz)



COMMUTATOR INSPECTION

Remove the starter motor case.

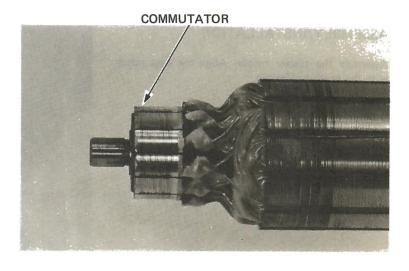
NOTE

Record the location and number of thrust washers for correct reassembly.

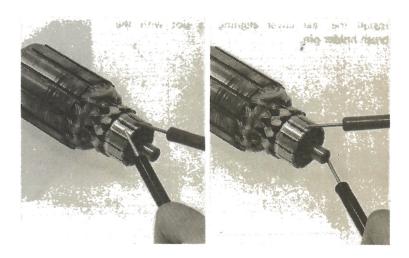
Inspect the commutator bars for discoloration. Bars discolored in pairs indicate grounded armature coils.

NOTE

Do not use emery or sand paper on the commutator.

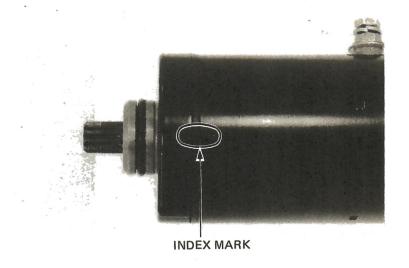


Check for continuity between pairs of commutator bars, and also between commutator bars and armature shaft.



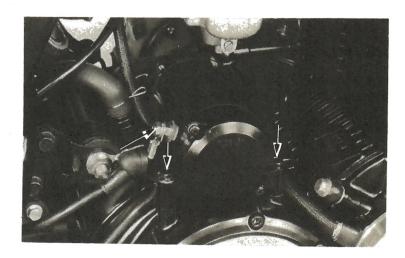


Install the front cover with its index mark aligned with the index mark on the case.



Install the starter motor.

Connect the starter cable and battery ground cable.



STARTER RELAY SWITCH

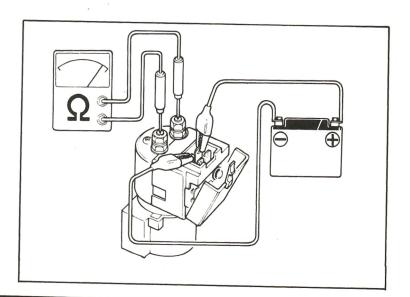
INSPECTION

Depress the starter switch button with the ignition ON. The coil is normal if the starter relay switch clicks.

Connect an ohmmeter to the starter relay switch terminals.

Connect a 12 V battery to the switch cable terminals,

The switch normal if there is continuity.



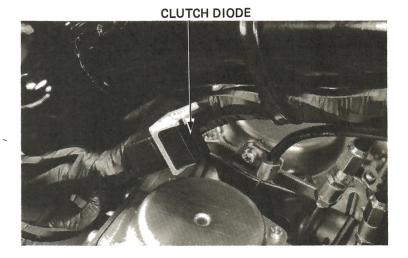


CLUTCH DIODE

REMOVAL

Remove the fuel tank.

Remove the clutch diode from the wire harness.



INSPECTION

Check for continuity with an ohmmeter.

NORMAL DIRECTION: CONTINUITY REVERSE DIRECTION: NO CONTINUITY

Replace the diode if it does not meet specifications.





20. SWITCHES

SERVICE INFORMATION	20-1	IGNITION SWITCH	20-5
OIL PRESSURE WARNING SWITCH	20-2	CLUTCH SWITCH	20-5
BRAKE SWITCHES	20-2	FUEL SENSOR	20-6
GEAR CHANGE SWITCH	20-3	BRAKE AND TAIL LIGHT SENSOR	20-7
HANDLEBAR SWITCHES	20-4		

SERVICE INFORMATION

GENERAL

Some wires have different colored bands around them near the connector. These are connected to other wires which correspond with the band color.

All plastic plugs have locking tabs that must be released before disconnecting, and must be aligned when reconnecting.

The following color codes used are indicated throughout this section and on the wiring diagram.

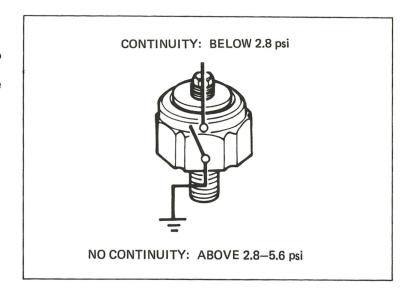
В	=Blue	С	=Green	LG	= Light Green	R	=Red
Bk	=Black	Gr	=Grey	0	=Orange	W	=White
Br	=Brown	LB	= Light Blue	P	=Pink	Υ	=Yellow

- To isolate an electrical failure, check the continuity of the electrical path through the part. A continuity check can usually
 be made without removing the part from the motorcycle. Simply disconnect the wires and connect a continuity tester or
 volt-ohmmeter to the terminals or connections.
- A continuity tester is useful when checking to find out whether or not there is an electrical connection between the two
 points. An ohmmeter is needed to measure the resistance of a circuit, such as when there is a specific coil resistance involved, or when checking for high resistance caused by corroded connections.



OIL PRESSURE WARNING SWITCH

Check for continuity while applying pressure to the switch. Replace the switch if necessary. Apply a liquid sealant to the switch threads before reinstalling.



BRAKE SWITCHES

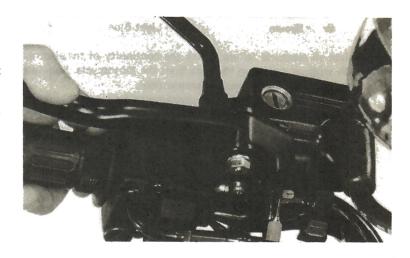
FRONT

Disconnect the wires from the front brakelight switch.

Check the front brake light switch for continuity with the front brake applied.

Replace the switch if necessary.

BRAKE APPLIED: CONTINUITY
BRAKE NOT APPLIED: NO CONTINUITY



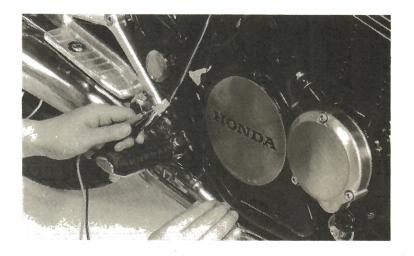
REAR

Remove the right side cover.

Disconnect the white/green and green/yellow leads.

Check the rear brake light switch for continuity with the rear brake applied.

BRAKE APPLIED: CONTINUITY
BRAKE NOT APPLIED: NO CONTINUITY



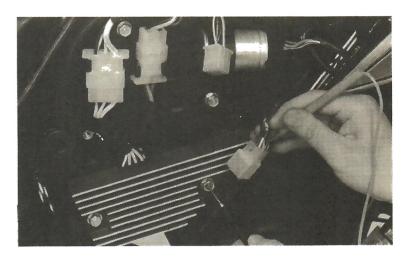


GEAR CHANGE SWITCH

Remove the left side cover and disconnect the gear change switch coupler.

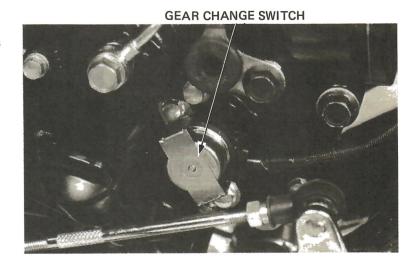
Check for continuity between each terminal and ground in each gear position.

Color code Position	Υ	G	В	w	R	Br	L	Ground
1st	6							0
N		0						0
2nd			0					
3rd				0				
4th					0			
5th						0		
OD							0	



Remove the gear shift pedal.

Remove the gear change switch mounting bolts and the switch.



Align the switch joint pin with the index mark (nutral position) on the switch.

Install the gear change switch with its joint pin aligned with the groove in the shift drum.

NOTE

When the gear shift linkage cover is removed, remove the switch from the cover and make sure the oil seal lip isn't damaged.



SHIFT DRUM GROOVE

JOINT PIN



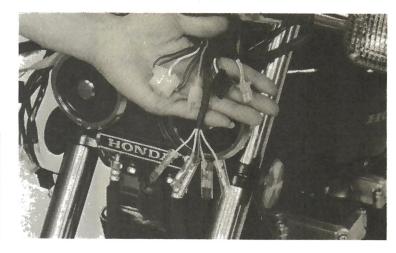
HANDLEBAR SWITCHES

Remove the headlight and fuse holder.

Disconnect the couplers and connectors.

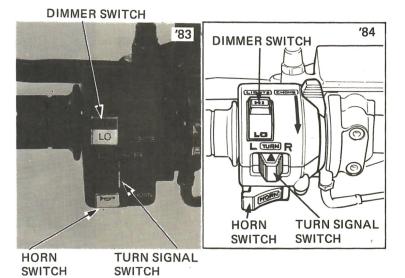
Check continuity between the color coded wires in each chart.

TURN	G	Lb	0	Br/W	Lb/W	O/W
SIGNAL	W	R	L	Р	PR	PL
R	0	-0		0		
N				0-		_
L	0-		- 0	0-		



DIMMER	L/W	W	L
DIMMEN	HL	LO	Hi
Lo	0		
(N)	0		o
Hi	0		

HORN	Lg	W/G
HONN	Но	BAT3
BUTTON OUT		
PUSH ED	0	o



ENGINE STOP	B/W	В
SWITCH	IG	BAT2
OFF		
RUN	0	0
OFF		





STARTER	В	Y/R	L/W	B/R
STARTER	IGN	ST	HL1	HL2
PUSHED			0-	
BUTTON OUT	0			

ENGINE '84 -STOP SWITCH STARTER SWITCH

ENGINE STOP SWITCH

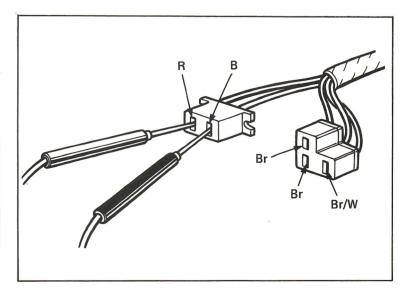
SWITCH

IGNITION SWITCH

Remove the headlight case.

Remove the fuse holder and disconnect the couplers. Check for continuity between the color coded wires in the chart below.

Terminal	R	В	Br/W	Br	Br
Position	BAT	IGN	TL1	TL2	Р
ON .	0		0	 0	
OFF					
Р	0				-0
LOCK					



CLUTCH SWITCH

Disconnect the wire leads from the clutch switch.

Check the continuity of the clutch lever (safety) switch with the clutch released and applied. Replace if necessary.

LEVER APPLIED: CONTINUITY
LEVER NOT APPLIED: NO CONTINUITY





FUEL SENSOR

Remove the fuel tank.

Remove the fuel sensor nuts and remove the sensor.

NOTE

Be careful not to bend the float arm.

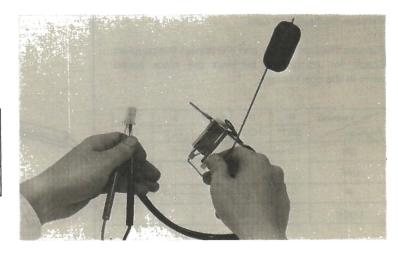


FUEL SENSOR INSPECTION

Connect the ohmeter to the fuel sensor coupler.

Inspect the resistance of the float at the top and bottom positions.

FLOAT POSITION	RESISTANCE
TOP (FULL)	$4-10~\Omega$
BOTTOM (EMPTY)	90 – 100 Ω



FUEL GAUGE FUNCTION TEST

Connect the fuel sensor coupler and turn the ignition switch ON.

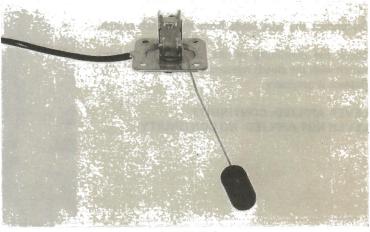
NOTE

Make sure the battery is in good condition.

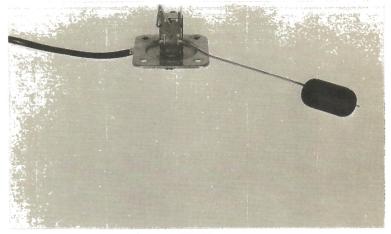
Inspect the function of the fuel gauge by putting the fuel sensor at the TOP and BOTTOM positions.

Float at Top: Float at Bottom:

Gauge should read FULL. Gauge should read RES.



(BOTTOM)



(TOP)

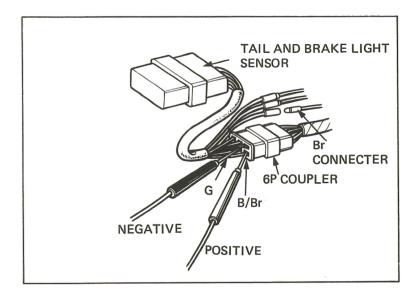
BRAKE AND TALL LIGHT SENSOR

Remove the seat.

Disconnect the tail light sensor Br connector. Turn the ignition switch ON, and check that the brake and tail light warning light comes on.

If the warning light does not come on, check voltage at the B/Br and G terminals of the brake and taillight sensor coupler (6P).

If there is no voltage, check and repair the circuit wiring and connections.

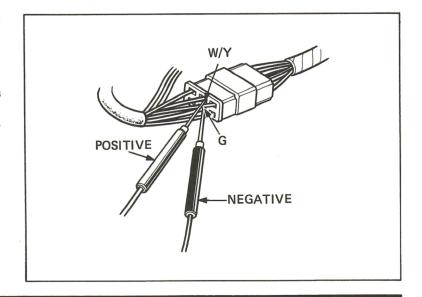


If there is voltage, measure the voltage at the W/Y (positive) and G (negative) terminals.

VOLTAGE: 9 ∼ 14 V

If there is no voltage between these terminals replace the brake and tail light sensor.

Connect the Br connector and reinstall the seat.





MEMO



BAT
ON OFF
P OLOCK

Date of Issue: Oct., 1983 © HONDA MOTOR CO., LTI



MEMO



CB650SC 22. TECHNICAL FEATURES

ENGINE FEATURES AUTOMATIC CAM CHAIN TENSIONER HYDRAULIC TAPPETS

22 - 1

22 - 2

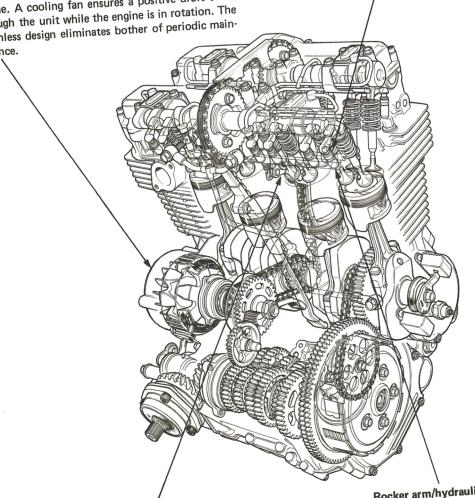
22 - 3

The engine is a DOHC, 16-valve, 4-cylinder unit. Each combustion chamber has two inlet and two exhaust valves side by side, ENGINE FEATURES ensuring efficient breathing and easy escape of spent gases. The opposing valves are positioned at 38° to each other to provide a small, compact combustion chamber and for higher output. The new, unique hydraulic tappets ensure accurate, stable valve operation regardless of temperature of the engine, resulting in quieter engine operation and eliminating the need for manual lash adjustment.

Alternator

Mounted at the rear of the cylinder, the alternator's location contributes to the compactness of the engine. A cooling fan ensures a positive draft of air through the unit while the engine is in rotation. The brushless design eliminates bother of periodic maintenance.

Hydraulic Tappets Hydraulic Tappets are used for the first time in a Honda engine. They eliminate the need for periodic valve clearance, inspection and/or adjustment.



Automatic cam chain tensioner

The automatic cam chain tensioner compensates for natural wear on the cam chain automatically, eliminating periodic adjustment and maintenance services.

Rocker arm/hydraulic lash adjuster

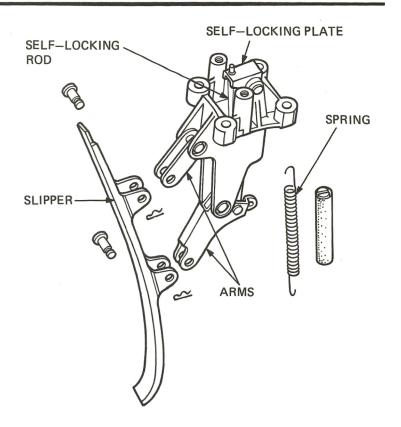
Hydraulic lash adjusters eliminate clearance between the valves and rocker arms, resulting in quieter engine operation.

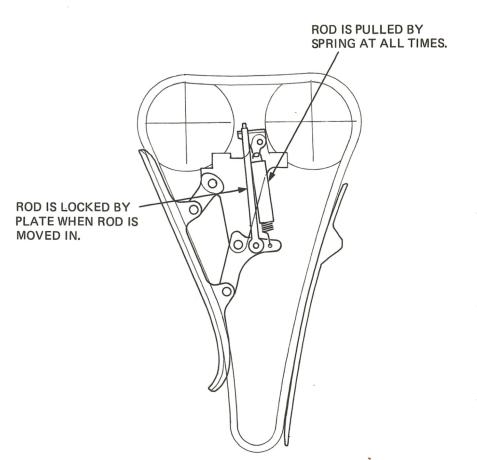


AUTOMATIC CAM CHAIN TENSIONER

The tensioner consists of an arm, slipper, spring, self-locking plate, self-locking rod and cam chain guide. The self-locking rod is connected on one end to the tensioner arm and on the other to the self-locking plate as shown. The spring exerts constant pressure holding the slipper against the cam chain at all times. The self-locking plate prevents backward movement of the self-locking rod and hence, the tensioner slipper.

As the cam chain wears, the spring causes the slipper to compensate automatically by forcing the self-locking rod out. The self-locking plate prevents the rod from being pushed in by the cam chain during operation.



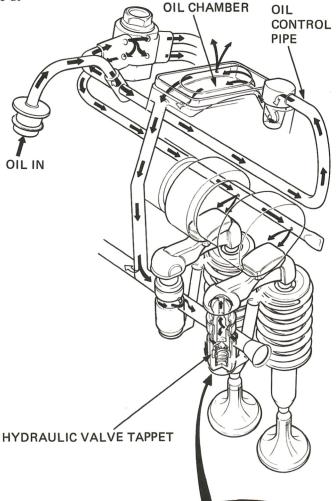




HYDRAULIC TAPPETS

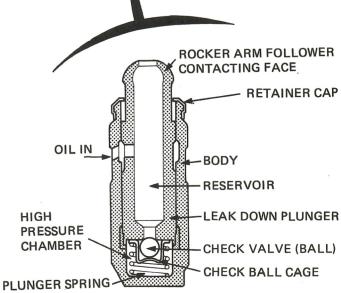
GENERAL

This motorcycle uses hydraulic tappets. Hydraulic tappets do not require adjustment and help the engine to run quieter by keeping valve clearance at zero at all engine temperatures.



OPERATION

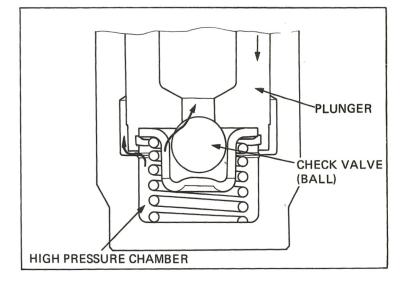
When the camshaft lobe does not push the rocker arm the tappet plunger is at rest. In this position its oil inlet hole align with the tappet body oil inlet hole. Oil enters the tappet reservoir through these holes.



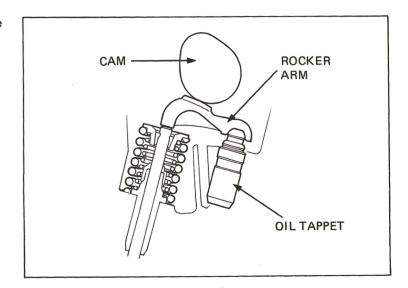


As the camshaft turns and pushes on the rocker arm slipper. The rockerarm pushes the tappet plunger down and oil pressure in the tappet high pressure chamber increases causing the check valve to close. During the short time it takes the check valve to close, a small amount of oil leaks out of the chamber and lift loss occurs (this is called "Early Sink").

As the cam lobe nears maximum lift, oil pressure in the high pressure chamber increase rapidly (because the check valve is closed). The high oil pressure keeps the check valve against the plunger. This causes a very small amount of oil to leak out of the high pressure chamber between the plunger and body. This allows the plunger to absorb the shock from the effects of the cam lobe reaching maximum lift.

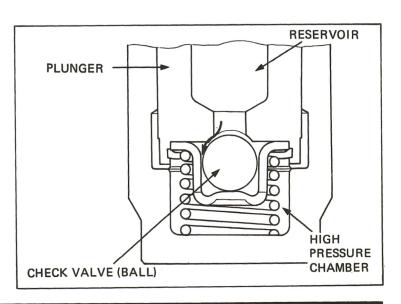


After the cam lobe passes maximum lift, the engine valve springs force the engine valve to close.



When the valve closes completly, the plunger is pused up by the spring in the high pressure chamber. Oil pressure decrease as a result the check valve leaves its seat and oil re-enter to the high pressure chamber from the reservoir.

All of the above actions keep valve clearance at zero under all normal operating conditions.





23. TROUBLESHOOTING

ENGINE DOES NOT START OR IS HARD TO START	23–1
ENGINE LACKS POWER	23–2
POOR PERFORMANCE AT LOW AND IDLE SPEED	23–3
POOR PERFORMANCE AT HIGH SPEED	23–3
HYDRAULIC TAPPET	23–4
POOR HAND LING	23–5

ENGINE DOES NOT START OR IS HARD TO START

			POSSIBLE CAUSE
1. Check fuel flow to carburetor	NOT REACHING CARBURETOR ───►	(1)	Fuel tank empty
		(2)	Clogged fuel tube or fuel
REACHING CARBURETOR			filter
		(3)	Sticking float valve
		(4)	Clogged fuel tank cap
			breather hole
1		(5)	Faulty fuel valve
2. Perform spark test	WEAK OR NO SPARK		Faulty spark plugs
			Fouled spark plugs
GOOD SPARK			Faulty spark unit
		(4)	Broken or shorted ignition coil
		(6)	Faulty ignition switch
			Faulty pulse generator
3. Test cylinder compression	LOW COMPRESSION ———	(1)	Low battery charge
	,	(2)	Valve stuck open
COMPRESSION NORMAL		(3)	Worn cylinder and piston
			rings
	,	(4)	Damaged cylinder head
			gasket
		(5)	Seized valve
			Improper valve timing
			Faulty hydraulic tappet
1		(8)	Excessive camshaft runout
4. Start by following normal	ENGINE FIRES BUT STOPS	- (1)	Improper choke operation
procedure		(2)	Carburetor incorrectly
p. 000 da. 0			adjusted
ENGINE DOES NOT FIRE		(3)	Manifold leaking
		(4)	Improper ignition timing
		/	(Spark unit or pulse generator)
		(5)	Fuel contaminated
↓			1
5. Remove and inspect spark plug	WET PLUG		Carburetor flooded
			Choke closed
			Throttle valve open
		(4)	Air cleaner dirty



ENGINE LACKS POWER

1.	Raise wheels off ground and spin by hand	WHEELS DO NOT SPIN FREELY		Worn or damaged wheel
	WHEEL SPINS FREELY		(3)	bearing Wheel bearing needs lubrica- tion
2.	Check tire pressure	PRESSURE LOW ———	(1)	Faulty drive train Punctured tire Faulty tire valve
	PRESSURE NORMAL		(2)	radity tire valve
3.	Accelerate rapidly from low to second	ENGINE SPEED CHANGED — WHEEL CLUTCH IS RELEASED	(1) (2)	Clutch slipping
	ENGINE SPEED LOWERED WHEN CLUTCH IS RELEASED	WILL GEOTOTIO HELEAGED	(3)	Warped clutch disc/plate
4.	Accelerate lightly	ENGINE SPEED DOES NOT INCREASED—		
	ENGINE SPEED INCREASES		(3)	Clogged air cleaner Restricted fuel flow Clogged fuel tank breather tube
5.	Check ignition timing CORRECT	INCORRECT	(1) (2)	Clogged muffler Faulty spark unit Faulty pulse generator
6.	Test cylinder compression	T00 L0W ———	(1)	Worn cylinder and piston
	NORMAL		(3)	rings Leaking head gasket
			(5)	Improper valve timing Excessive camshaft runout
7.	Check carbretor for clogging	CLOGGED	(1)	Carburetor not serviced frequently enough
	NOT CLOGGED			mequently energy.
8.	Remove spark plug	FOULED OR DISCOLORED	(1)	Plugs not serviced frequently enough
	NOT FOULED OR DISCOLORED		(2)	Spark plug with incorrect heat range
9.	Check oil level and condition		(1)	Oil level too high
	CORRECT		(3)	Oil level too low Contaminated oil
10.	Remove cylinder head cover and inspect lubrication	VALVE TRAIN NOT LUBRICATED → ► PROPERLY	(1) (2)	Clogged oil passage Clogged oil control orifice
	VALVE TRAIN LUBRICATED PROPERLY			
11.	Check for engine overheating	OVERHEATING -	(1)	
	NOTOVERHEATING			in combustion chamber Use of poor quality fuel Clutch slipping
12.	Accelerate or run at high speed	ENGINE KNOCKS —	(1)	Worn piston and cylinder Wrong type of fuel
	ENGINE DOES NOT KNOCK		(3)	Excessive carbon build-up in combustion chamber
			(4)	Ignition timing too advanced (Faulty spark unit or pulse generator)





POOR PERFORMANCE AT LOW AND IDLE SPEED **POSSIBLE CAUSE** 1. Check ignition timing and camshaft INCORRECT -► (1) Improper ignition timing (Faulty spark unit or pulse generator) CORRECT (2) Faulty camshaft journal 2. Check carburetor pilot screw INCORRECT → See Fuel System Section adjustment CORRECT 3. Check for leaking intake pipe LEAKING -→ (1) Deteriorated insulator O-ring (2) Loose carburetor **NO LEAKS** WEAK OR INTERMITTENT SPARK ——— (1) Faulty, carbon or wet fouled 4. Perform spark test spark plug (2) Faulty spark unit **GOOD SPARK** (3) Faulty ignition coil (4) Faulty pulse generator POOR PERFORMANCE AT HIGH SPEED 1. Check ignition timing INCORRECT -→ (1) Faulty spark unit (2) Faulty pulse generator CORRECT → (1) Lack of fuel in tank 2. Disconnect fuel tube at carburetor FUEL FLOW RESTRICTED ----(2) Clogged fuel line (3) Clogged fuel tank breather **FUEL FLOWS FREELY** hole (4) Clogged fuel cock 3. Remove carburetor and check for → (1) Clean CLOGGED clogged jet **NOT CLOGGED** (1) Cam sprocket not installed 4. Check valve timing INCORRECTproperly CORRECT — ► (1) Faulty spring 5. Check valve spring tension WEAK -

NOT WEAKENED



HYDRAULIC TAPPET

TAPPET NOISE

Snap ten times or ride for five minutes with the engine speed 3,000 rpm.

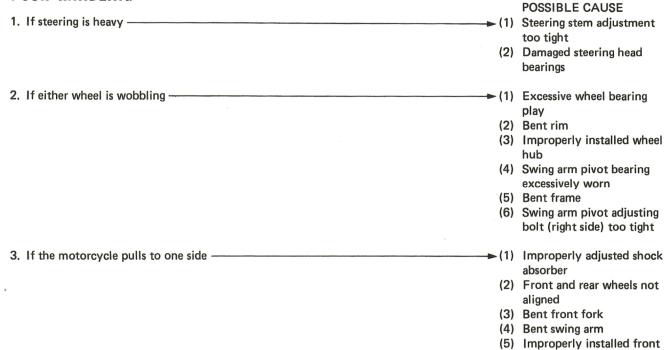
Check oil level and condition. CORRECT	INCORRECT	(2)	Oil level too low Contaminated oil Contaminated oil filter
2. Check oil pressure. NOT CLOGGED	TOO LOW		Clogged oil passage Clogged oil control orifice
3. Remove cylinder head cover and oil hole caps and check lubrication CORRECT	NOT LUBRICATE PROPERLY	(2)	Clogged oil pipe Defected O-ring Defected oil hole cap
4. Remove hydraulic tappet and check CORRECT	INCORRECT —	(2)	Plunger stick Defected tappet Defected one way valve
ENGINE LACKS POWER 1. Turn the engine for a few minute with starter. ENGINE DOES NOT START	ENGINE START	→ (1)	Bubbly engine oil with over rev up.
2. Check oil pressure CORRECT	TOO LOW —————————————————————————————————	(2) (3)	Oil level too low Clogged oil passage Contaminated oil Contaminated oil filter
 Remove tappet and check 	INCORRECT-	→ (1)	Deffect tappet



fork brace



POOR HANDLING





MEMO



24. '83 CB550SC ADDENDUM

INTRODUCTION

This addendum contains information for the 1983 CB550SC.

Refer to the 1983 CB650SC base shop manual for service procedures and data not included in this addendum.

All information, illustrations, directions and specifications included in this publication are based on the latest product information available at the time of approval for printing. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation whatever. No part of this publication may be reproduced without written permission.

HONDA MOTOR CO., LTD. Service Publications Office

CONTENTS

1. GENERAL INFORMATION
2. MAINTENANCE 24-6
3. ENGINE REMOVAL/INSTALLATION 24-7
4. CRANKSHAFT 24-8
5. FRONT WHEEL/SUSPENSION 24-9
6. REAR WHEEL/SUSPENSION 24-16
7. HYDRAULIC BRAKE 24-20
8. FINAL DRIVE
9. SWITCHES
10 WIDING DIACDAM 24 25



CB550SC



1. GENERAL INFORMATION

SPECIFICATIONS

	ITEM		
DIMENSIONS Overall length Overall width Overall height Wheelbase Seat height Ground clearance Dry weight		th ht	2150 mm (84.6 in) 870 mm (34.3 in) 1160 mm (45.7 in) 1440 mm (56.7 in) 800 mm (31.5 in) 150 mm (5.9 in) 190 kg (419 lb)
FRAME	Type Front suspension, travel Rear suspension, travel Front tire size Rear tire size		Double cradle tubular steel Telescopic fork 160 mm (6.3 in) Swingarm 105 mm (4.1 in) 100/90-19 57S 130/90-16 67S
	Cold tire	Driver only	Front 200 kPa (2.00 kg/cm², 28 psi) Rear 200 kPa (2.00 kg/cm², 28 psi)
	pressures	Driver and passenger	Front 200 kPa (2.00 kg/cm², 28 psi) Rear 250 kPa (2.50 kg/cm², 36 psi)
	Front brake, lining swept area Rear brake, lining swept area Fuel capacity Fuel reserve capacity Caster angle Trail Front fork oil capacity		Disc Brake, 490 cm² (76.0 sq in) Drum brake, 176 cm² (27.3 sq in) 12 liters (3.17 US gal, 2.64 lmp gal) 2.5 liters (0.66 US gal, 0.55 lmp gal) 29° 107 mm (4.2 in) 375 cc (12.7 ozs)
ENGINE	Type Cylinder arrangement Bore and stroke Displacement Compression ratio Valve train Maximum horsepower		Air cooled 4-stroke, DOHC Vertical in-line four 60.0 x 50.6 mm (2.36 x 1.99 in) 572 cm³ (23.0 cu in) 9.5 : 1 Chain driven DOHC, 4 valves per cylinder 47.7 kw/9,500 rpm
	Maximum torque Oil capacity Lubrication system Air filtration Cylinder compression Intake valve Opens Closes Exhaust valve Opens Closes Valve clearance Engine weight Idle speed		62 PS/9,500 rpm 49.8 N·m/8,000 rpm 5.05 kg-m/8,000 rpm 3.2 liters (3.4 US qt, 2.8 lmp qt) Wet sump Paper 1176.8 ± 98.1 kPa (12.0 ± 1.0 kg/cm², 170 ± 14 psi) 5° (BTDC) at 1 mm lift, 58° (BTDC) at 0 lift 40° (ABDC) at 1 mm lift, 101° (ABDC) at 0 lift 35° (BBDC) at 1 mm lift, 87° (BBDC) at 0 lift 10° (ATDC) at 1 mm lift, 72° (ATDC) at 0 lift
			IN: EX: 0 mm / HYDRAULIC TAPPETS 75 kg (165 lb) 1,100 ± 100 rpm
CARBURETOR	Venturi diar Identificatio Float level Main jet Slow jet Idle speed Throttle grip Fast idle	n No.	32 mm (1.3 in) VE 62A 18.5 mm (0.73 in) # 110 # 35 1,000 ± 100 rpm 2-6 mm (½-½ in) 1,000-2,500 rpm (after break-in) 2 % turns out



DRIVE TRAIN	Clutch		W	et, multi-plate		
	Transmission	n .	1	speed + O.D.		
	Primary redu	ıction	1.863 : 1			
	Gear ratio I			2.769:1		
	Gear ratio II		1.850 : 1			
	Gear ratio III		3	1.429:1		
	Gear ratio IV			1.154:1		
	Gear ratio V			0.966 : 1		
	Gear ratio V	•		0.821 : 1		
	Final reducti			91 (18/16 x 34/11) : 1		
	Gear shift pa	attern	Left-foot operated re	eturn system, 1-N-2-3-4-5-0.D.		
ELECTRICAL	Ignition			ransistorized		
	Ignition timir			at 1,400 \pm 200 rpm		
	Full advance			at 3,000 \pm 250 rpm		
	Starting syst	tem _.		rter motor only		
	Generator			ternator 280W/6,000 rpm		
	Dattam, sans	-14	1	(Air Cooled)		
	Battery capa Spark plug	city	12V — 12 AH			
	opam prag		NGK	ND		
		Standard	DPR8EA-9	X24EPR-U9		
		For extended high speed riding	DPR9EA-9	X27EPR-U9		
		For cold climate (Below 5 °C)	DPR7EA-9	X22EPR-U9		
	Spark plug gap		0.8-0.9 mm (0.031-0.035 in)			
LIGHTS	Headlight (hi	gh/low beam)	12V-60/55 W	H4 BULB (Phillips 12342/99		
				or equivalent)		
	Tail/stoplight		12V-3/32 CP	SAE NO. 1157		
	Turn signal li	ght (front/rear)	12V-32 CP	SAE NO. FRONT 1034		
				REAR 1073		
	Instrument		12V-2 CP	SAE NO. 57		
	Neutral indica		12V-2 CP	SAE NO. 57		
	Turn signal ir		12V-2 CP	SAE NO. 57		
	High beam in		12V-2 CP	SAE NO. 57		
	Oil pressure		12V-2 CP	SAE NO. 57		
	Position light		12V-3 CP	SAE NO. 1034		
FUSE			15A (Headlight, taillight and instrument light) 30A (Main fuse)			

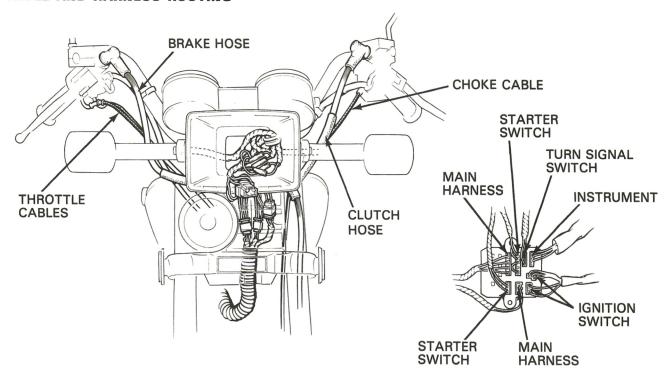
TOOLS

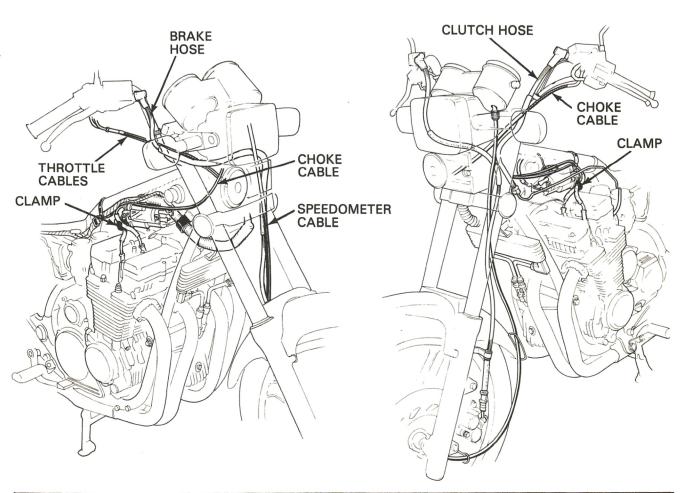
• SPECIAL

DESCRIPTION	PART NUMBER	ALTERNATE TOOL	PART NUMBER	REF. PAGE
Pinion holder Pinion shaft puller Pinion gear retainer wrench Fork seal driver Attachment	07924-ME40000 07931-ME40000 07910-4630100 07947-3710101 07946-3710701	Attachment	07946-3710700	24-23 24-24 24-24 24-9 24-9



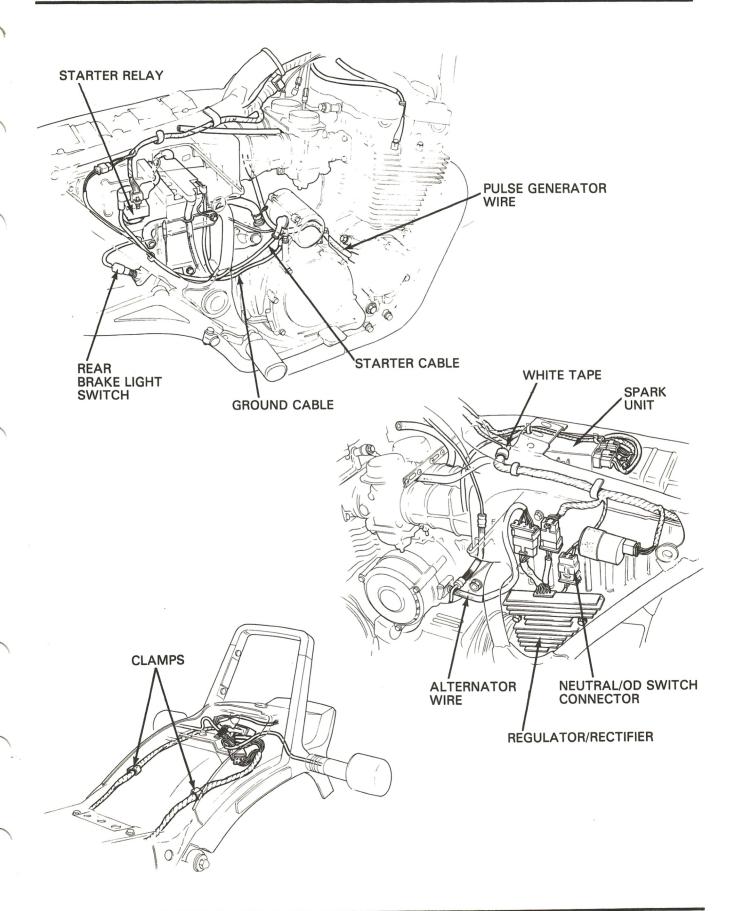
CABLE AND HARNESS ROUTING





Date of Issue: Feb., 1983







2. MAINTENANCE

MAINTENANCE SCHEDULE

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.

I: INSPECT AND CLEAN, ADJUST, LUBRICATE, OR REPLACE IF NECESSARY.

C: CLEAN, R: REPLACE, A: ADJUST, L: LUBRICATE

			WHICHEVER ODOMETER READING (NOTE 3)							TE 3)	
		FREQUENCY									
			FIRST		£ /	£ 1 / ()	38/	28	12 E/	18 E/	2 E/
		ITEM	-	/ 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(8, 80 Mil) 18, 80 Mil) 18, 80 Mil)					Refer to
		TTEIVI	EVERY	7.6	0,0	·/ ~@	/ 35	V/~:	S/ 05)/ m~	page
	*	FUEL LINES			I	١	I	Ι	Ι	Π	3-4
MS	*	FUEL STRAINER		С	С	С	С	С	С	С	3-4
E	*	THROTTLE OPERATION		1	1	1	1	1	1	1	3-5
EMISSION RELATED ITEMS	*	CARBURETOR CHOKE			1	1	1	1	1	1	3-6
ATE		AIR CLEANER	NOTE 1		С	R	С	R	С	R	3-7
Ē		CRANKCASE BREATHER	NOTE 2		С	С	С	С	С	С	3-8
Z		SPARK PLUGS			R	R	R	R	R	R	3-8
S		ENGINE OIL	YEAR	R	R	R	R	R	R	R	2-3
IIS:		ENGINE OIL FILTER	YEAR	R	R	R	R	R	R	R	2-3
	*	CARBURETOR-SYNCHRONIZATION		ı	ı	ı	1	I	1	1	3-9
	*	CARBURETOR-IDLE SPEED		ı	1	ı	ı	ı	1	1	3-10
		FINAL DRIVE OIL	14 m	BL.	432	715	37. 1		其為	R	2-9
		BATTERY	MONTH	- - 1 .	91	:1.	13	410		調劑	3-11
1S		BRAKE FLUID (FRONT)	MONTH I 2 YEARS *R	°.1	1 -		1=	jî,	12	*R	3-12
		BRAKE SHOE/PAD WEAR	el d	3.	1.	116	11/	41 5	114	刘被	3-12
0		BRAKE SYSTEM	TO ME SAN		415	21.1	1.	(a) -	* 1 th	41.4	3-13
빌	*	BRAKE LIGHT SWITCH	· · · · · · · · · · · · · · · · · · ·	⊊il in	4.1.4	a = 1	1.	-411-	1-1	训练	3-14
	*	HEADLIGHT AIM	Bern Wester & Sen	- 12		ند اکر	1.	:≟[≥		يه الد	24-10
NON-EMISSION RELATED ITEMS		CLUTCH FLUID	MONTH 2 YEARS *R		1		-	山之		*H	3-14
SSI		CLUTCH SYSTEM	The state of the	李15	1		1119	11	15	136	3-14
Σ		SIDE STAND	The said	1	-1.	1	1.	1.	\$ 4	41	3-15
- Z	*	SUSPENSION	But I James	1	1	τl.	11	71.	1	13	3-15
8	*	NUTS, BOLTS, FASTENERS	2000年	4.1	115	\$15	1.	녣		河景	3-17
	**	WHEELS	新加速	1	1.3	50	.1 [ान्द्र	\$1	:12	3-17
	* *	STEERING HEAD BEARINGS		1.				12,	in .	1.	3-17

- * SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS PROPER TOOLS AND SERVICE DATA AND IS MECHANICALLY QUALIFIED.
- **IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED ONLY BY AN AUTHORIZED HONDA DEALER.

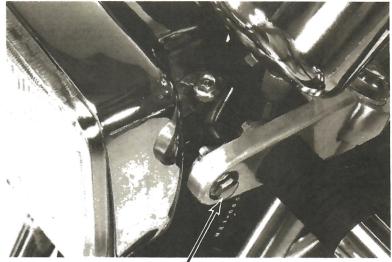
NOTES:

- 1. SERVICE MORE FREQUENTLY WHEN RIDING IN DUSTY AREAS.
- 2. SERVICE MORE FREQUENTLY WHEN RIDING IN RAIN OR AT FULL THROTTLE.
- 3. FOR HIGHER ODOMETER READINGS, REPEAT AT THE FREQUENCY INTERVAL ESTABLISHED HERE.



HEADLIGHT ADJUSTMENT

Adjust the headlight beam vertically by loosening both headlight case mounting bolts. Carefully position the headlight, and retighten the bolts.



HEADLIGHT CASE MOUNTING BOLT

Adjust the beam horizontally by loosening the adjusting bolts directly behind the headlight.

Carefully position the beam, and retighten the bolts.

NOTE:

Adjust the headlight beam as specified by local laws and regulations.

WARNING

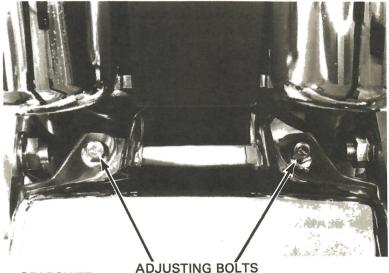
An improperly adjusted headlight may blind oncoming drivers, or it may fail to light the road for a safe distance.

3. ENGINE REMOVAL/ INSTALLATION

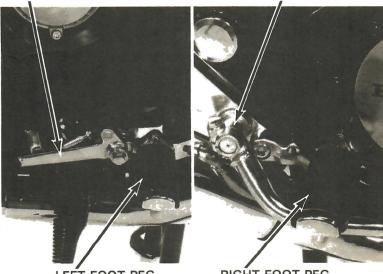
Remove the brake pedal and right foot peg bracket.

Remove the gearshift pedal and left foot peg.

Refer to the base manual (section 5) for the balance of the engine removal/ installation procedure.



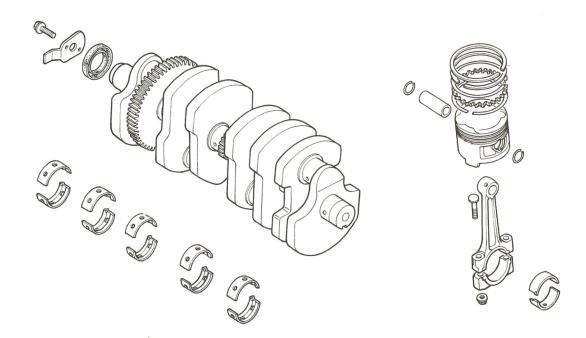
GEARSHIFT PEDAL **BRAKE PEDAL**



RIGHT FOOT PEG **LEFT FOOT PEG**



4. CRANKSHAFT



The CB550SC's crankshaft is different from that of the CB650SC.

Refer to the tables below for bearing selection.

MAIN BEARING

			MAIN JOURNAL O.D. CODE NO.				
			1	1 2		4	
			32.994 — 32.000 mm (1.2596 — 1.2598 in)	31.988 — 31.994 mm (1.2594 — 1.2596 in)	31.982 — 31.988 mm (1.2591 — 1.2594 in)	31.976— 31.982 mm (1.2589— 1.2591 in)	
I.D.	А	35.000 — 35.006 mm (1.3780 — 1.3782 in)	Pink	Yellow	Green	Brown	
CRANKCASE I.D.	В	35.006- 35.012 mm (1.3782- 1.3784 in)	Yellow	Green	Brown	Black	
200	С	35.012 — 35.018 mm (1.3784 — 1.3787 in)	Green	Brown	Black	Blue	

MAIN BEARING INSERT THICKNESS

 $\begin{array}{lll} \text{Blue} &: 1.511-1.514 \text{ mm } (0.0595-0.0596 \text{ in}) \\ \text{Black} &: 1.508-15.11 \text{ mm } (0.0594-0.0595 \text{ in}) \\ \text{Brown} &: 1.505-1.508 \text{ mm } (0.0593-0.0594 \text{ in}) \\ \text{Green} &: 1.502-1.505 \text{ mm } (0.0591-0.0593 \text{ in}) \\ \text{Yellow} &: 1.499-1.502 \text{ mm } (0.0590-0.0591 \text{ in}) \\ \text{Pink} &: 1.496-1.499 \text{ mm } (0.0589-0.0590 \text{ in}) \end{array}$

CONNECTING ROD BEARING

			CRANKPIN O.D. CODE NO.				
			Α	В	С		
			31.992— 32.000 mm (1.2595— 1.2598 in)	31.992 — 31.984 mm (1.2592 — 1.2595 in)	31.976 — 31.984 mm (1.2589 — 1.2592 in)		
JD I.D.	1	35.000 – 35.008 mm (1.3780 – 1.3783 in)	Yellow	Green	Brown		
CONNECTING ROD I.D. CODE NO.	2	35.008- 35.016 mm (1.3783- 1.3786 in)	Green	Brown	Black		
CONN	3	35.016 — 35.024 mm (1.3786 — 1.3789 in)	Brown	Black	Blue		

BEARING INSERT THICKNESS:

Blue : 1.502-1.506 mm (0.0591-0.0593 in)
Black : 1.498-1.502 mm (0.0590-0.0591 in)
Brown : 1.494-1.498 mm (0.0588-0.0590 in)
Green : 1.490-1.494 mm (0.0587-0.0588 in)
Yellow : 1.486-1.490 mm (0.0585-0.0587 in)

Date of Issue: Feb., 1983



5. FRONT WHEEL/SUSPENSION

SERVICE INFORMATION

GENERAL

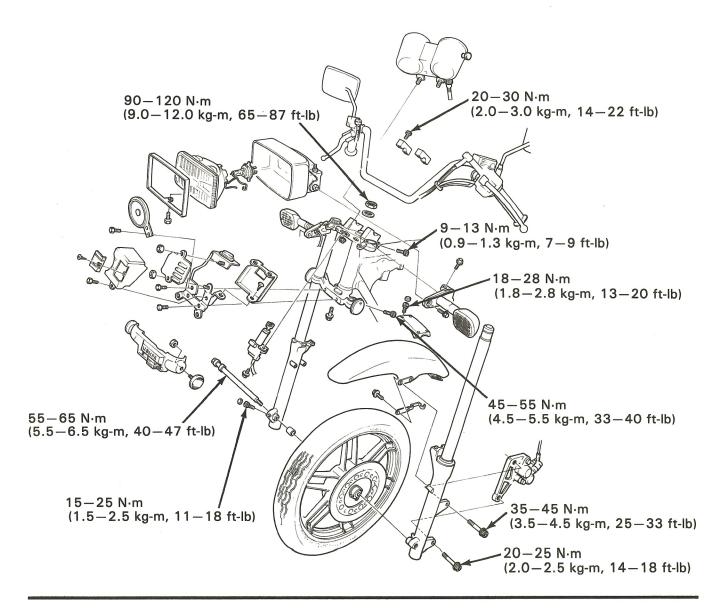
For front fork service procedures, refer to the right front fork in the base shop manual.

NOTE:

For fork seal installation, use driver 07947-3710101. There is no snap ring on top of the CB550SC fork seal.

SPECIFICATIONS

	STANDARD	SERVICE LIMIT		
Fork spring free length	551.5 mm (21.71 in)	540.5 mm (21.28 in)		
Front fork fluid capacity	375 cc (12.7 ozs)	_		



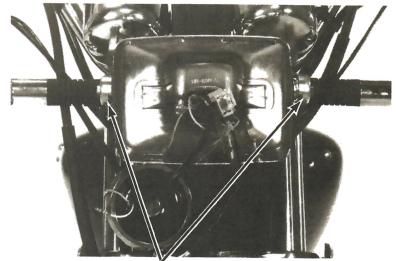


HEADLIGHT

HEADLIGHT CASE REMOVAL

Remove the headlight and disconnect all wires at their couplers and connectors.

To remove the headlight case, unscrew the headlight case mounting bolts.



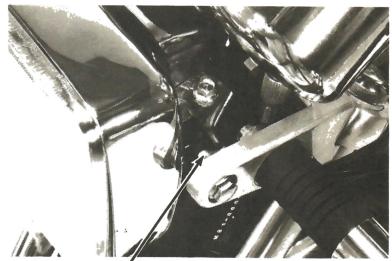
HEADLIGHT CASE MOUNTING BOLTS

HEADLIGHT CASE INSTALLATION

Install the headlight case on the headlight bracket.

Connect the color-coded wires and couplers.

Align the index marks on the headlight case stays with the index marks on the brackets.

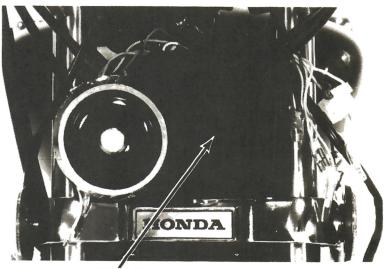


INDÉX MARKS

FUSE HOLDER

Remove the headlight case.

Remove the fuse cover.



FUSÉ COVER

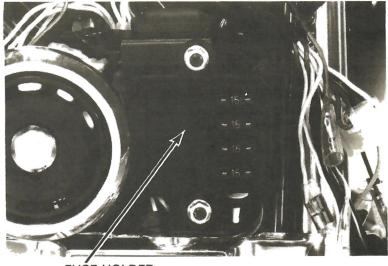


Remove the two fuse holder mounting bolts and disconnect the wire couplers.

Remove the fuse holder.

NOTE:

Before disconnecting the wire couplers from the holder, note the position of each one.

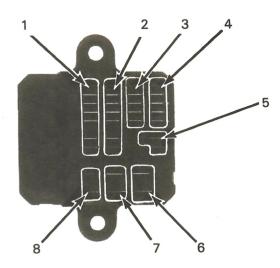


FUSE HOLDER

Connect the couplers to the fuse holder as shown.

- 1. Main harness
- 2. Starter switch
- 3. Turn signal switch
- 4. Instruments
- 5. Ignition switch
- 6. Ignition switch
- 7. Main wire harness
- 8. Starter switch

Install the fuse holder in the reverse order of removal.



INSTRUMENTS

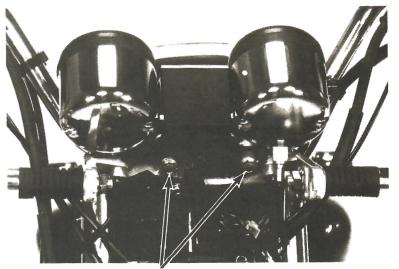
REMOVAL

Remove the headlight case (page 24-10).

Disconnect the instrument wire connectors at the fuse holder.

Remove the speedometer cable from the speedometer.

Remove the instrument mounting nuts and instruments.



NUTS



DISASSEMBLY

Remove the instrument lower cover.

CAUTION:

Do not leave the instruments upside down or damping fluid will leak onto the inside of the lens.

Remove the instrument bracket screw, and separate the instruments from the instrument panel.

SCREWS

INSTRUMENT BRACKET

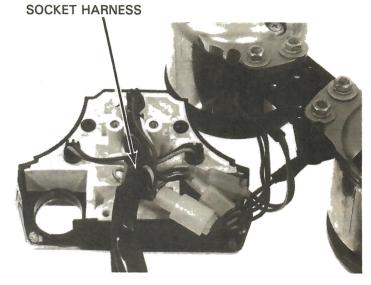
INSTRUMENT BRACKET

LOWER COVER

Remove the instrument bulb socket harness and replace any burnt out bulbs.

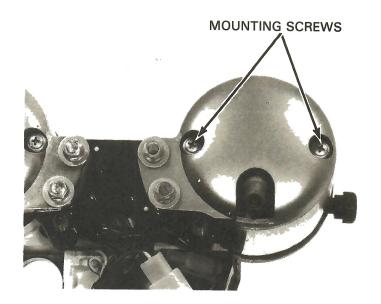
After installing a new bulb, check for continuity.

If the new bulb doesn't light, inspect the wiring for an open or short circuit.





Remove the meter mounting screws and the meters.



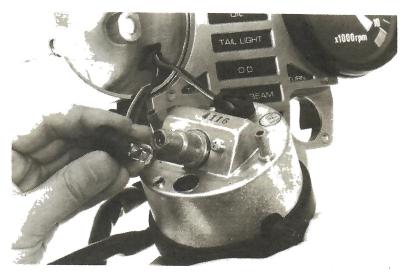
Replace any inoperative meter light bulbs.

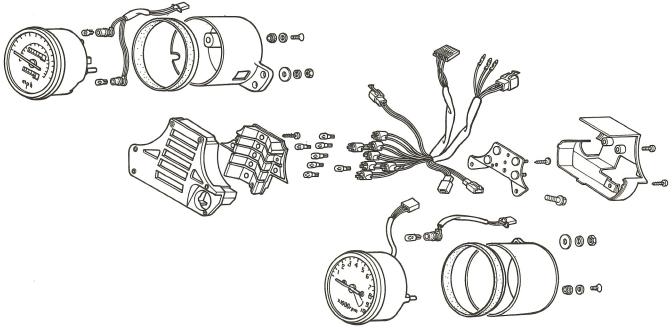
If a replacement bulb does not light, check the wiring for an open circuit, or a loose connection.

ASSEMBLY/INSTALLATION

Lubricate the speedometer cable before reconnecting.

Reassemble and install in the reverse order of removal and disassembly.



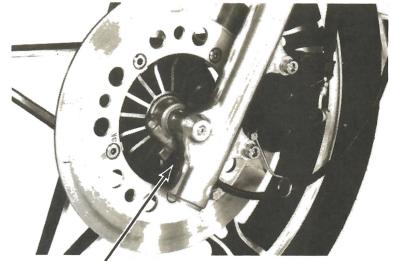




FRONT WHEEL

REMOVAL

Remove the speedometer cable set screw and the speedometer cable.



SPEEDOMETER CABLE SET SCREW

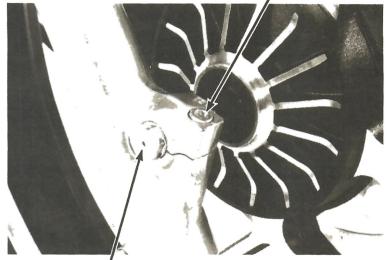
AXLE SHAFT HOLDER BOLT

Loosen the axle shaft holder bolt and loosen the axle shaft.

Raise the front wheel, pull out the axle shaft and remove the front wheel.

NOTE:

Do not operate the front brake lever after removing the front wheel. To do so will cause difficulty when reinstalling the brake disc between the brake pads.



AXLE SHAFT

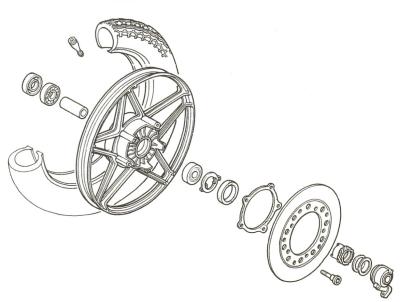
DISASSEMBLY/ASSEMBLY

WARNING

Be careful not to get grease on the brake disc or stopping power will be reduced.

NOTE:

The cast wheel needs no rim band. The front wheel uses a tubeless tire. For tubeless tire repair, refer to the Honda Tubeless Tire Manual.





INSTALLATION

Set the front wheel under the fender and fit the disc between the brake pads.

Align the speedometer gearbox with the tang on the left fork leg as shown.

Tighten the axle shaft to the specified torque.

TORQUE: 55-65 N·m (5.5-6.5 kg-m, 40-47 ft-lb)

Tighten the axle shaft holder bolt to the specified torque.

TORQUE: 15-25 N·m

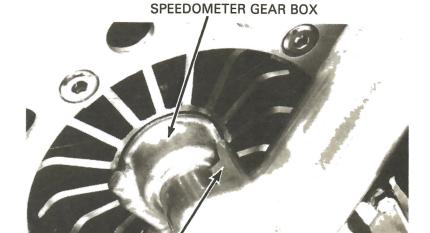
(1.5-2.5 kg.m, 11-18 ft-lb)

Insert the speedometer cable into the speedometer gear.

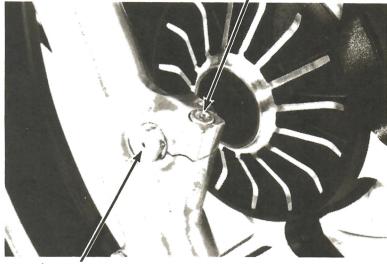
NOTE:

Turn the front wheel slowly to mesh the cable and drive unit gears.

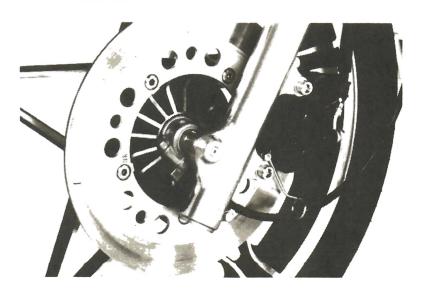
With the front brake applied, pump the front forks up and down several times to check for smooth operation.



TANG AXLE SHAFT HOLDER BOLT



AXLE SHAFT



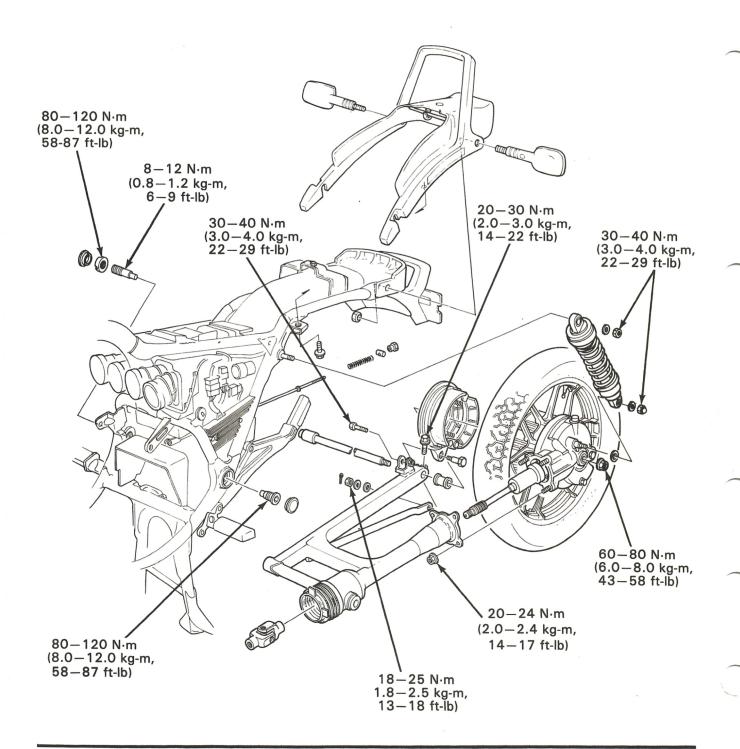


6. REAR WHEEL/SUSPENSION

SERVICE INFORMATION

SPECIFICATIONS

	STANDARD	SERVICE LIMIT
Shock absorber spring free length	228.2 mm (8.98 in)	223.6 mm (8.80 in)



Date of Issue: Feb., 1983



SHOCK ABSORBER

REMOVAL

NOTE:

Remove and service one shock absorber at a time to facilitate removal and installation.

Adjust the shock absorber to the softest position.

Remove the shock absorber upper and lower mounting hardware.

Remove the shock absorber.

DISASSEMBLY

Replace the base of shock compressor 07959-3290001 with 07959-MB10000. Be sure to replace the spring compressor guide and clevis with the ones supplied with 07959-MB10000.

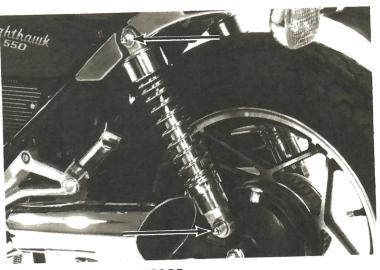
Set the rear shock in the compressor as shown and compress the spring 30 mm by turning the compressor handle.

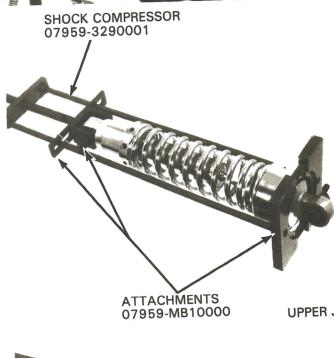
CAUTION:

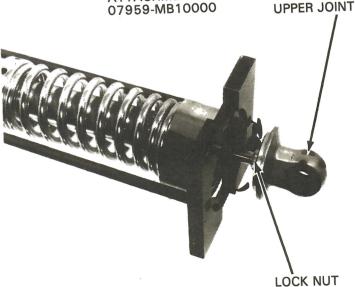
Be sure that the compressor base is properly adjusted to fit the shock spring seat, and that the clevis pin is screwed all the way into the clevis.

Place the upper joint in a vice and pull the shock rod out.

Loosen the lock nut by turning it in the direction shown. Remove the upper joint, and then carefully remove the shock compressor.









SPRING FREE LENGTH

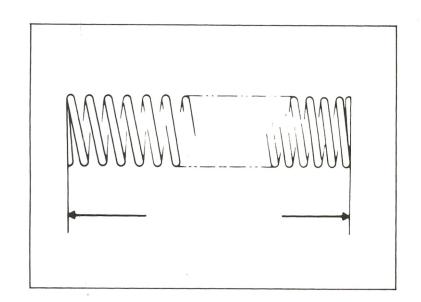
Measure the rear shock absorber spring free length.

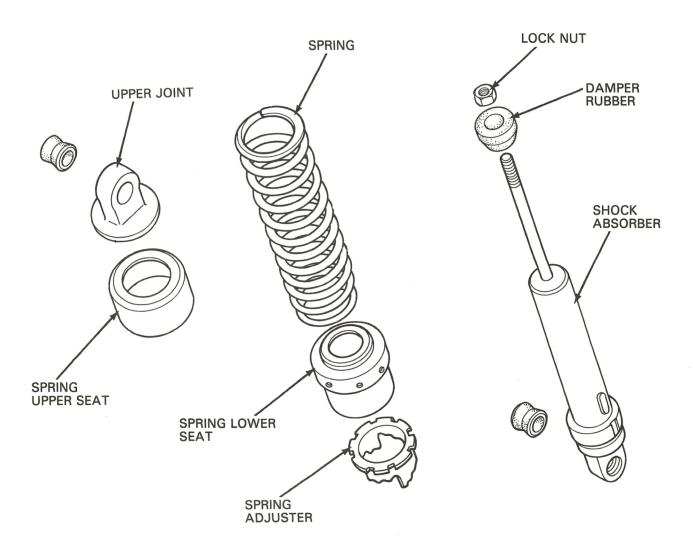
SERVICE LIMIT: 223.6 mm (8.80 in)



NOTE:

Install the spring with the tightly wound coils at the upper end.









Apply a locking agent to the damper rod threads and install the lock nut.

Place the shock in the shock absorber compressor.

CAUTION:

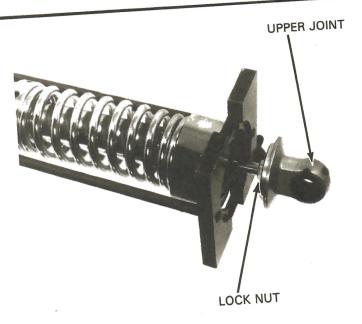
Be sure that the shock compressor base is properly adjusted to fit the shock spring seat, and that the clevis pin is screwed all the way into the clevis.

Apply a locking agent to the damper rod threads and screw the upper joint on. Hold the upper joint in a vice and tighten the lock nut securely.

NOTE:

Check that the lock nut is seated against the rod's bottom thread.

Align the spring seat with the upper joint while releasing the compressor.



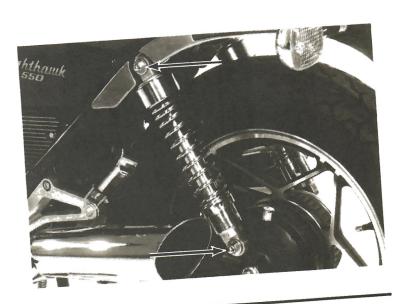


INSTALLATION

Install the shock absorber onto the frame.

Tighten the upper and lower mounting hardware.

TORQUE: 30-40 N·m (3.0-4.0 kg-m, 22-29 ft-lb)





7. HYDRAULIC BRAKE

SERVICE INFORMATION

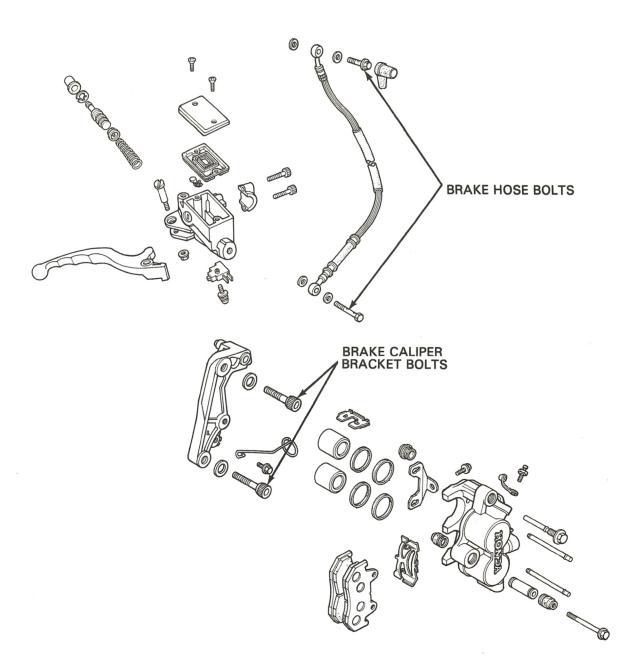
GENERAL

The caliper and bracket for the CB550SC are the same as those used on the right front fork of the CB650SC. Refer to the base shop manual for their service.

TORQUE VALUES

Brake hose bolt Brake caliper bracket bolt 25-35 N·m (2.5-3.5 kg·m, 18-25 ft-lb)

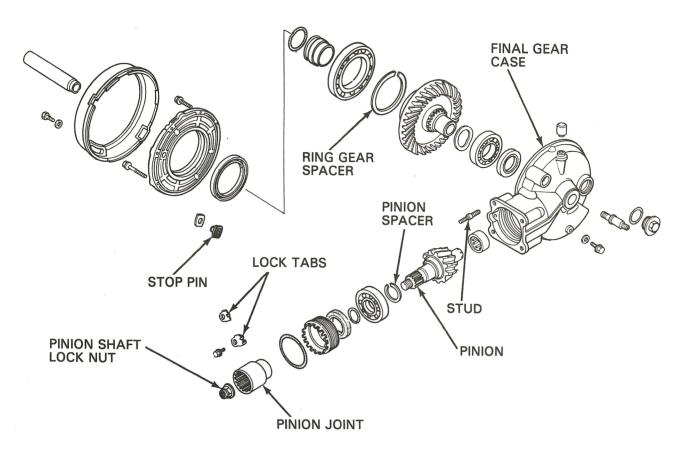
t 30-40 N·m (3.0-4.0 kg-m, 22-29 ft-lb)





8. FINAL GEAR CASE

For drive shaft removal and dis/assembly procedures, refer to Section 13.



UNIVERSAL JOINT

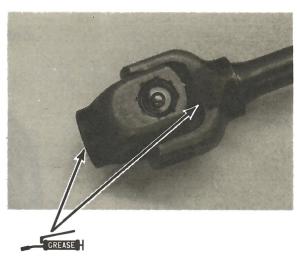
REMOVAL/INSTALLATION

Remove the swingarm (page 15-15).

Remove the universal joint from the engine output shaft.

Inspect the universal joint bearings for excessive play or damage.

Apply molybdenum disulfide grease to the splines, and install the universal joint.





FINAL DRIVE GEAR

RING GEAR REMOVAL

Remove the distance collar.

Remove the dust guard plate bolt.

Remove the dust guard plate by turning it clockwise.

Remove the eight case cover bolts and cover. If the ring gear stays in the cover, do the following:

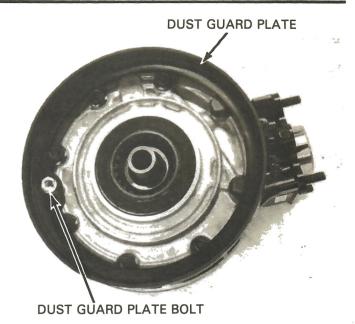
Place the cover in a press with the ring gear down.

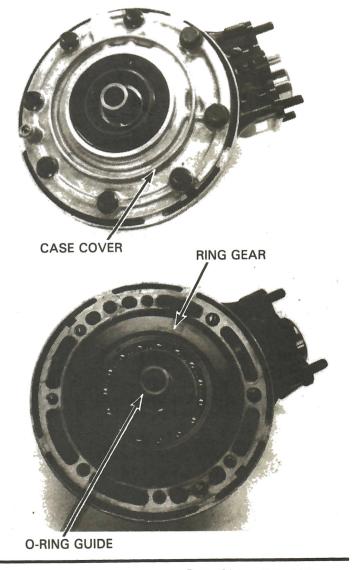
Make sure the cover is well supported.

Press the ring gear out of the cover with driver 07749-0010000 and attachment 07746-0010100.

Remove the ring gear from the final drive case.

Remove the O-ring guide by tapping it from the pinion side.

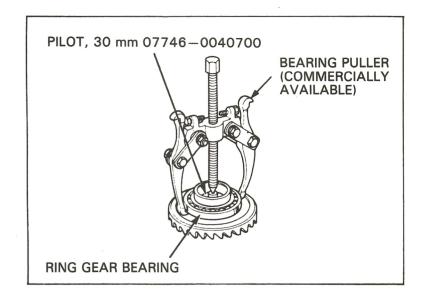






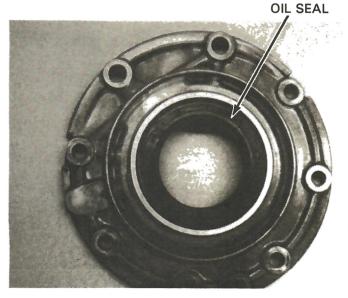
RING GEAR BEARING REMOVAL

Remove the ring gear bearing and gear adjusting spacer as shown.



CASE COVER OIL SEAL REPLACEMENT

Remove the oil seal from the case cover and press in a new oil seal.



PINION REMOVAL

Attach the hollow shafts to the pinion holder so that their openings are on the side marked 37.5 mm.

Place the hollow shafts over the final gear case studs so that the holder fits securely into the pinion joint.

Remove the pinion joint lock nut as shown.

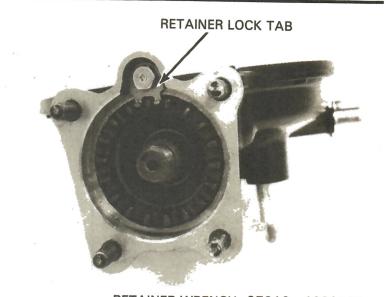
Remove the tool and the pinion joint.





Remove the retainer lock tab.

pinion retainer wrench.

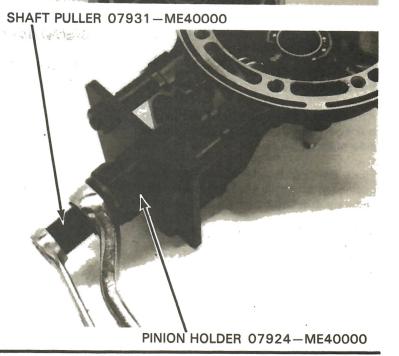


RETAINER WRENCH 07910-4630100

Reinstall the pinion holder onto the final gear case.

Thread the shaft puller onto the pinion shaft.

Remove the pinion shaft by turning the shaft puller.



Date of Issue: Feb., 1983





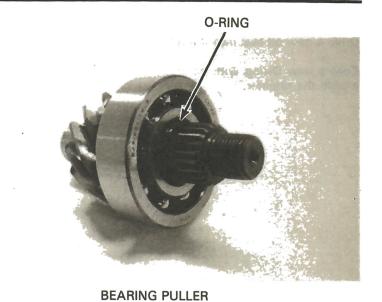
PINION BEARING REMOVAL

Remove the O-ring from the pinion shaft.

Pull the pinion bearing races off the shaft with a bearing puller, and remove the pinion adjustment spacer.



Remove the O-ring and oil seal from the pinion retainer.



PINION BEARING

PINION BEARING

PINION BEARING

OIL SEAL

PINION RETAINER O-RING

DRIVER 07749-0010000

ATTACHMENT 07945-3330100



Drive a new oil seal into the retainer.

Coat a new O-ring with oil and install it onto the retainer.



CASE BEARING AND OIL SEAL REPLACEMENT

Heat the gear case to approximately 80 ° C (176 ° F). Tap the gear case with a plastic hammer and remove the ring gear and pinion bearings.

WARNING

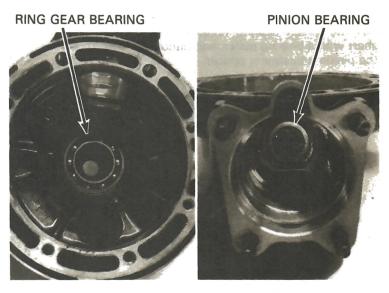
Always wear gloves when handling the gear case after it has been heated.

NOTE:

The ring gear bearing may be removed using bearing remover 07936—8890100 (30 mm).

Remove the ring gear shaft oil seal.

Drive a new oil seal into the case, using the special tools.



OIL SEAL 07749 – 0010000

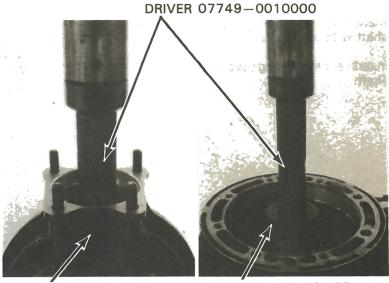
ATTACHMENT

07945-3330300





Press new pinion and ring gear bearings into the final drive case.



ATTACHMENT, 32 x 35 mm 07746-0010100

ATTACHMENT, 52 x 55 mm 07746-0010400 PILOT, 30 mm 07746-0040700

BREATHER HOLE CLEANING

Remove the breather cap and force compressed air through the breather passages.





PINION GEAR ASSEMBLY

Install the original pinion spacer.

NOTE:

If the gear set, pinion bearing and/or gear case has been replaced, use a 2.0 mm thick spacer.





Press the bearing onto the pinion gear shaft with the special tool shown.

Install a new O-ring over the pinion shaft.

Place the pinion assembly into the gear housing.

Drive the pinion assembly into the gear case until pinion retainer threads can engage with the case threads.

Apply gear oil to the O-ring and threads on the pinion retainer.

Screw in the pinion retainer to press the pinion bearing in place, then tighten it to the specified torque.

TORQUE: 100-120 N·m (10-12 kg-m, 72-87 ft-lb)

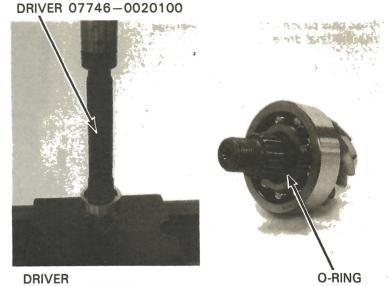
RING GEAR ASSEMBLY

Install the original spacer onto the ring gear.

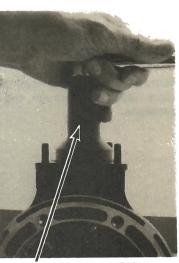
NOTE:

If the gear set, pinion bearing, ring gear bearing and/or gear case are replaced, install a 2.0 mm thick spacer.

Place the new ring gear bearing over the ring gear shaft.



07746-0030100



RETAINER WRENCH 07910-4630100

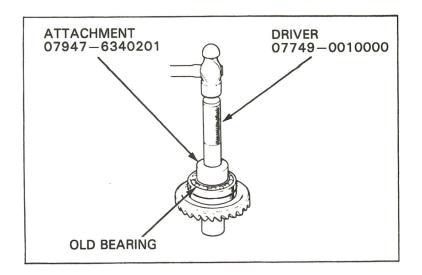




RING GEAR SPACER

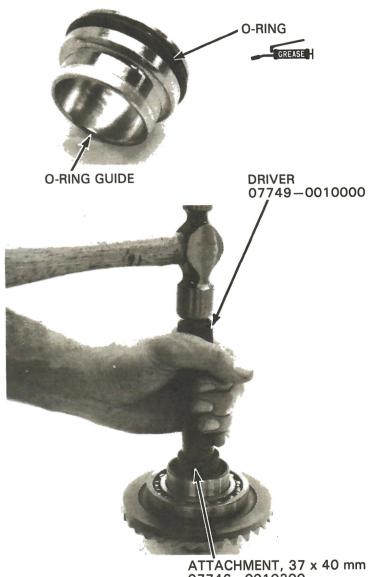


Place the old bearing on top of the new one. Then, drive the new bearing onto the shaft with the old bearing and attachment. Remove the old bearing.



Install a new O-ring onto the O-ring guide and apply grease to the O-ring.

Drive the O-ring guide onto the ring gear shaft.



07746-0010200



Install the ring gear into the gear case cover.

Measure the clearance between the ring gear and the ring gear stop pin with a feeler gauge.

CLEARANCE: 0.30-0.60 mm (0.012-0.024 in)

If the clearance exceeds the service limit, remove the ring gear.

Heat the gear case cover to approximately 80° C (176° F), and remove the stop pin by gently tapping the cover.

W WARNING

Always wear gloves when handling the gear case after it has been heated.

Install a stop pin shim to obtain the correct clearance.

SHIM THICKNESS:

A: 0.10 mm (0.004 in) B: 0.15 mm (0.006 in)

Install the shim and drive the stop pin into the case cover.

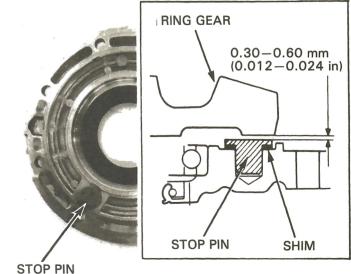
Clean all sealing material off the mating surfaces of the gear case and cover.

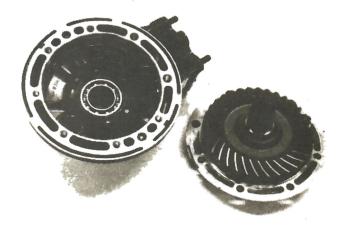
NOTE:

- Keep dust and dirt out of the gear case.
- Be careful not to damage the mating surfaces.

Apply liquid sealant to the mating surface of the gear case cover.









Apply a thin coat of Prussian Blue to the pinion gear teeth for a gear tooth contact pattern check.

Place the wave washer and ring gear into the gear case.

Apply gear oil to the lip of the oil seal on the gear case cover and install the gear case cover.

Tighten the cover bolts in 2-3 steps until the cover evenly touches the gear case, then tighten the 8 mm bolts to the specified torque in a crisscross pattern in two or more steps.

TORQUE: 23-28 N·m (2.3-2.8 kg-m, 17-20 ft-lb)

Then tighten the 10 mm bolts.

TORQUE: 40-50 N·m (4.5-5.0 kg-m, 33-36 ft-lb)

GEAR TOOTH CONTACT PATTERN CHECK

Refer to page 13-15 in the base manual for contact pattern check procedure.

If adjustment is required, refer to the table below for spacer selection.

PINION SPACERS:

--- A 1.82 mm (0.072 in)

B 1.88 mm (0.074 in)

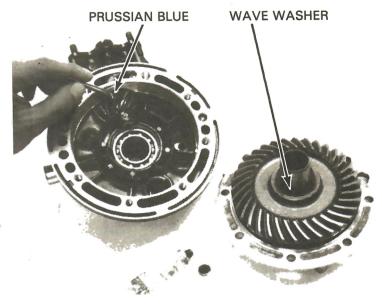
C 1.94 mm (0.076 in)

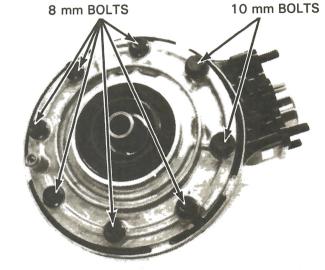
D 2.00 mm (0.079 in) Standard

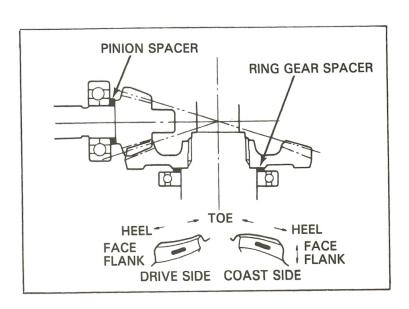
E 2.06 mm (0.081 in)

F 2.12 mm (0.084 in)

G 2.18 mm (0.086 in)









BACKLASH INSPECTION

Refer to page 13-16 in the base manual for backlash inspection procedure.

If adjustment is required, refer to the table below for spacer selection.

RING GEAR SPACERS:

A 1.82 mm (0.072 in)

B 1.88 mm (0.074 in)

C 1.94 mm (0.076 in)

D 2.00 mm (0.079 in) Standard

E 2.06 mm (0.081 in)

F 2.12 mm (0.084 in)

G 2.18 mm (0.086 in)

H 2.24 mm (0.088 in)

I 2.30 mm (0.091 in)

PINION JOINT INSTALLATION

Install the appropriate pinion retainer lock tab.

NOTE:

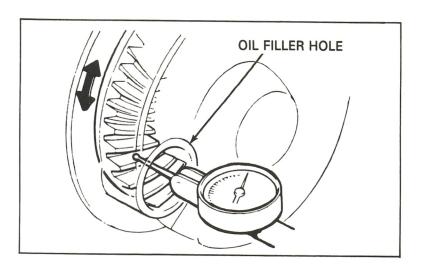
There are two types of lock tabs as shown.

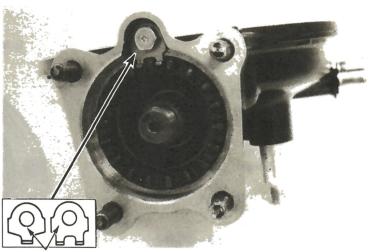
Apply gear oil to the oil seal lip contact surface of the pinion joint and install the pinion joint.

Install the pinion joint holder tool and tighten the pinion nut.

TORQUE: 100-120 N·m (10-12 kg-m, 72-87 ft-lb)

Remove the pinion joint holder tool.





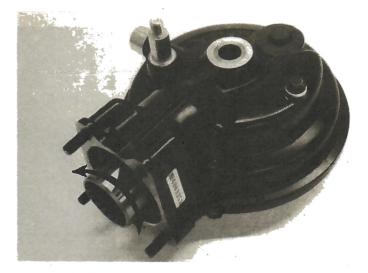
LOCK TABS



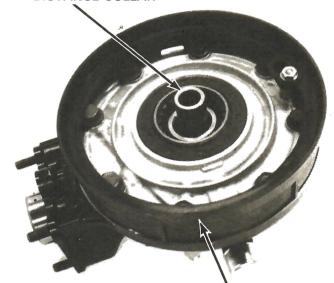
PINION HOLDER 07924-ME40000



Make sure that the gear assembly rotates smoothly without binding by turning the pinion joint.



DISTANCE COLLAR



DÙST GUARD PLATE



Install the distance collar.

FINAL DRIVE INSTALLATION

Apply Molybdenum disulfide grease to the pinion joint splines and drive shaft oil seal.

Insert the drive shaft into the swingarm and align its splines with the universal

Loosely attach the gear case to the swingarm, install the rear wheel and insert the axle.

Tighten the axle nut.

TORQUE:

50-80 N·m (5.0-8.0 kg-m, 36-58 ft-lb)

Tighten the gear case attaching nuts. TORQUE:

20-24 N·m (2.0-2.4 kg-m, 14-18 ft-lb)

Tighten the axle pinch bolt.

TORQUE:

20-30 N·m (2.0-3.0 kg-m, 14-22 ft-lb)

Recommended oil: Hypoid Gear

Over 5°C: SAE 90. Below 5°C: SAE 80 Oil capacity: 120 cc (4.1 US oz.)





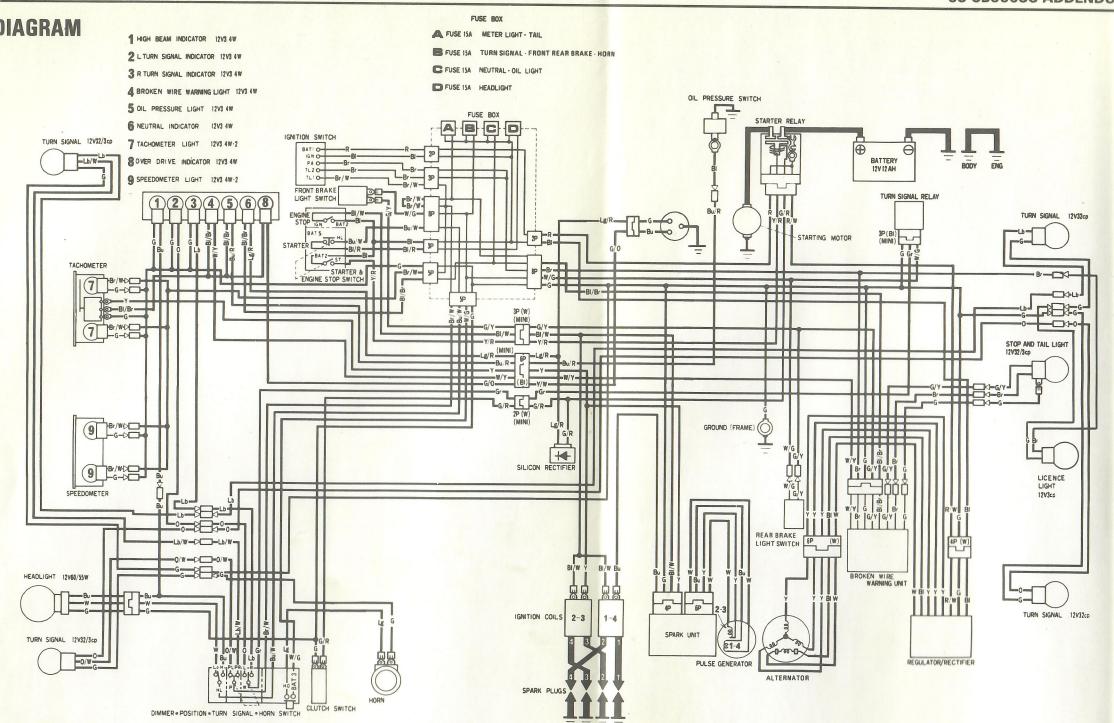
9. SWITCHES GEAR POSITION SWITCH

Remove the left side cover and disconnect the gear change switch connectors.

Check for continuity between the terminals and ground in the appropriate gear positions.

COLOR CODE POSITION	G	Bu	GROUND
N	\bigcirc		0
OD		0-	







BULLETIN

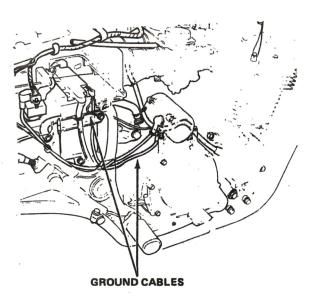
MOTORCYCLE SERVICE DEPARTMENT

1983 CB550SC CHARGING SYSTEM

If a customer has a complaint about the battery going dead frequently or that the starter can't crank the engine at normal cranking speed, check the battery and charging system using the procedures detailed below.

- Check the specific gravity fo the battery. If the battery water is too low to check specific gravity, fill as required, then charge the battery before retesting.
 - At 20°C (68°F), it should be 1.270 to 1.290 with no more than 0.050 variation between cells. See the specific gravity/temperature correction chart on page 17-3 of the '83 CB550SC/CB650SC Shop Manual to determine the exact specific gravity numbers to use in your location. Charge the battery, as necessary, then retest.
 - —If the battery was OK on the initial test or is now OK after charging, go to step 2.
 - -If the battery is not OK, replace it and service it per SL #48, Preparation of New Batteries. Then, go to step 2.
- Check that both battery ground cables are making good contact; the main cable on the engine case and the auxiliary cable on the frame near the battery box.

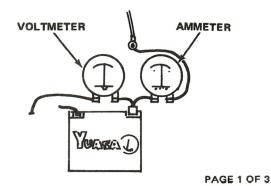
Check that all cable ends are clean and free of corrosion, then reinstall them and tighten their bolts.



 Start the engine and allow it to warm up for 10-minutes at 2000-2100 rpm. Then check the output of the charging system using a voltmeter and ammeter as shown.

NOTE:

- Allow the voltage to stabilize at 14-15 volts before checking amperage output.
- The ammeter must read to ± 20 amps.



© American Honda Motor Co., Inc. 1983 - All Rights Reserved ROUTING:

COPY 1

GENERAL MANAGER

SALES DEPT.

OFFICE FILE

MTB 6131 8307

SERVICE MANAGER

MECHANICS

SHOP MANUAL

CB550SC #1 JULY 1983

	RPM	Amperage Output
	2500	2 amps
I	2000-2100	0 ± 1 amp
I	1500	_5 ± 1 amp
I	1000	_10 ± 1 amp

- -If the system output is OK, go to step 4.
- -If the system output isn't OK, go to step 5.
- 4. Replace the original stator with a low-rpm, high-output stator. Before reinstalling the rotor bolt, apply Loctite ® Lock N' Seal, or its equivalent, to the rotor bolt threads. Then go to step 7.

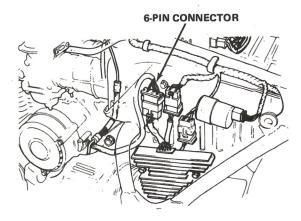
LOW-RPM HIGH-OUTPUT STATOR

RPM	Amperage Output
2500	2 amps
1700-1800	0 ± 1 amp
1500	_3 ± 1 amp
1000	_9 ± 1 amp

5. Test the stator and regulator/rectifier as follows:

NOTE: Use a negative ground ohmeter for all these tests.

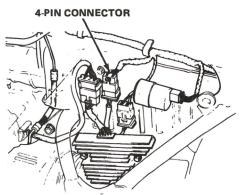
 Stator — Disconnect the 6-pin connector and measure the resistance between the yellow wires on the wire harness side: It should be 0.4 — 0.6 ohms. Now, measure the resistance between each yellow wire and ground: it should be infinite.



Now, measure the resistance between the black and white wires: it should be 4-6 ohms.

Then, measure the resistance between the black wire and ground: it should be infinite.

 Regulator/Rectifier — Disconnect the 4-pin and 6-pin connectors for the Regulator/ Rectifier.



With the ohmmeter's positive lead on the red/white wire and the negative lead on any yellow wire, measure the resistance: it should be infinite.

With the ohmmeter's positive lead on any yellow wire and the negative lead on the red/ white wire, measure the resistance: it should be 5-40 ohms.

With the ohmmeter's positive lead on the green wire and the negative lead on any yellow wire, measure the resistance: it should be 5-40 ohms.

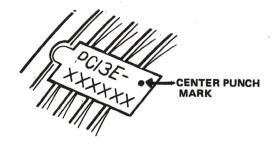
With the ohmmeter's positive lead on any yellow wire and the negative lead on the green wire, measure the resistance: it should be infinite.

- If the stator or regulator/rectifier fail to meet these specifications, replace them and retest.
- If these components test OK, go to step 6.

6. With all components reconnected, start the engine. At the 4-pin regulator/rectifier connector, insert the positive probe of a voltmeter into the black wire (on the harness side) and connect the negative probe to ground.

Increase the engine speed to 2500 RPM and watch the voltmeter: voltage should stabilize at 14-15 volts.

- If the voltage is as specified, go to the warranty section of this bulletin.
- If the voltage is not as specified, replace the regulator/rectifier and retest.
- Identify any motorcycle that you install a new stator in, by making a center punch mark on the engine number boss.



PARTS INFORMATION

(Replace only as necessary)

Stator

H/C 153707<u>5</u>

P/N 31120-ME5-015

Regulator/Rectifier

H/C 1379296

P/N 31600-ME4-000

Battery

H/C 137825<u>6</u>

P/N 31500-ME5-671

WARRANTY INFORMATION

The normal warranty of 12-months, unlimited mileage applies. Warranty repairs on models beyond this time period will require approval from your District Service Manager.

Fill in the appropriate warranty claim form as shown in the next column.

For stator replacement:

			JOB CODE	HRS TENTHS
FAILED HONDA	ODE 15	3707_	E6-3	0.5
DEFECT CODE	67	TREATMENT CODE	1 or 2	

For battery replacement:

			JOB CODE	HRS TENTHS
FAILED HONDA	ODE 13	18256	C4-1	0.3
DEFECT CODE	67	TREATMENT CODE	1 .	

For regulator/rectifier replacement:

		JOB CODE :	HRS TENTHS	
FAILED HONDA CODE 1379296			C4-4	0.3
DEFECT CODE	67	TREATMENT	1 or 2	:



BULLETIN MOTORCYCLE SERVICE DEPARTMENT

1983 CB650SC CAM CHAIN TENSIONER

Early production units of this motorcycle may have a cam chain rattle caused by the chain tensioner not working properly. To correct this condition, install a modified cam chain tensioner as outlined below and as described in detail in the 1983 CB650SC Shop Manual, pages 6-3 through 6-21:

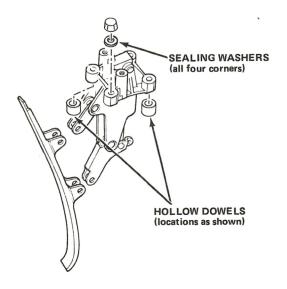
AFFECTED FRAME NUMBER RANGE: DM000001 - DM005767

1. Remove the parts necessary to ease removal of the cylinder head cover, then remove the cover.

WARNING Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames in the work area.

2. Remove the camshafts and the cam chain tensioner, leaving the hydraulic tappets and rocker arms in place - if you remove the tappets, they will require bleeding before reassembly.

CAUTION: The tensioner is held in place by four cap nuts. Each cap nut has a sealing washer beneath it. There are also two hollow dowels beneath the tensioner. To avoid dropping the washer or dowels into the engine, disassemble the parts very carefully.



- 3. Inspect the sealing washer for damage and replace as necessary.
- 4. Install the modified cam chain tensioner.
- 5. Reinstall the camshafts.
- 6. Using a new gasket, reinstall the cylinder head cover.

CAUTION: Take care not to damage or dislodge the oil defoaming chamber covers.

7. Reinstall the remaining parts in the reverse order of disassembly. Check that there are no fuel leaks before starting the engine.

PARTS REQUIRED:

Cam Chain Tensioner H/C 1414200, P/N 14500-ME5-010

Cylinder Head Cover Gasket H/C 1326040, P/N 12391-ME5-000

Sealing Washer (as required) H/C 0873935, P/N 90441-469-000

> MTB 5087 8212 (over)

RO	U	T	١	N	G	:	
	(20)	P١	Ý	1	

GENERAL	MANAGE

WARRANTY INFORMATION

Use Warranty Claim Form W02 with a time of 1.8 hours. Fill in the claim as shown below.

ALL PARTS ARE NEW UNLESS OTHERWISE NOTED

	REPAIR PARTS AND LABOR									
	A) Replace cam chain tensioner									
HONE	A CODE	DEF.COD	ET	CODE	(LAB	OR) T	IME	T	OT.	PTS
1414200 30			1	0	0 1.8				,	
- T	FOLLOW	ING PAR	TS RE	PLACED	DUE	ТОА	BOVE	CAL	ISE	
QTY HONDA CODE			DESC	CRIPTION	OF P	ARTS	DEAL NET		5	File
1	1 1414200			Chain Tensioner				15	7	
1	13260	40	Head Cover Gasket				3.4	7.7		

	DESCRIPTION OF DEFECTS					
	Cam chain tensioner is sticking, causing the					
	chain to rattle-					
	Replace cam chain tensioner per Service					
¥0	Bulletin CB650sc#1.					
RE						
<						
-80	Special Labor or Sublet Repairs					

Warranty coverage for motorcycles beyond the normal (12 month/unlimited mileage) warranty period must be authorized by your District Service Manager.

On your claim form, be sure to fill in the following items:

- 5-digit claim number
- Dealer number

- 17-digit frame number
- 7-digit engine number

AMERICAN HONDA MOTOR CO., INC. SERVICE DEPARTMENT

SERVICE

BULLETIN

AMERICAN HONDA MOTOR CO., INC.

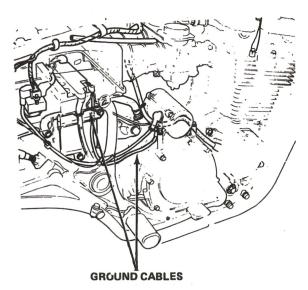
MOTORCYCLE SERVICE DEPARTMENT

1983 CB650SC CHARGING SYSTEM

If a customer has a complaint about the battery going dead frequently or that the starter can't crank the engine at normal cranking speed, check the battery and charging system using the procedures detailed below.

- Check the specific gravity fo the battery. If the battery water is too low to check specific gravity, fill as required, then charge the battery before retesting.
 - At 20°C (68°F), it should be 1.270 to 1.290 with no more than 0.050 variation between cells. See the specific gravity/temperature correction chart on page 17-3 of the '83 CB650SC Shop Manual to determine the exact specific gravity numbers to use in your location. Charge the battery, as necessary, then retest.
 - —If the battery was OK on the initial test or is now OK after charging, go to step 2.
 - -If the battery is not OK, replace it and service it per SL #48, Preparation of New Batteries. Then, go to step 2.
- Check that both battery ground cables are making good contact; the main cable on the engine case and the auxiliary cable on the frame near the battery box.

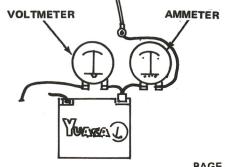
Check that all cable ends are clean and free of corrosion, then reinstall them and tighten their bolts.



 Start the engine and allow it to warm up for 10-minutes at 2000-2100 rpm. Then check the output of the charging system using a voltmeter and ammeter as shown.

NOTE:

- Allow the voltage to stabilize at 14-15 volts before checking amperage output.
- The ammeter must read to ± 20 amps.



PAGE 1 OF 3

MTB 6128 8307

© American Honda Motor Co., Inc. 1983 - All Rights Reserved ROUTING:

COPY 1

COPY 2

GENERAL MANAGER

SALES DEPT.

OFFICE FILE

SERVICE MANAGER L

MECHANICS

SHOP MANUAL

CB650SC #2 JULY 1983

RPM	Amperage Output
2500	2 amps
2000-2100	0 ± 1 amp
1500	-5 ± 1 amp
1000	_10 ± 1 amp

- -If the system output is OK, go to step 4.
- -If the system output isn't OK, go to step 5.
- 4. Replace the original stator with a low-rpm, high-output stator. Before reinstalling the rotor bolt, apply Loctite ® Lock N' Seal, or its equivalent, to the rotor bolt threads. Then go to step 7.

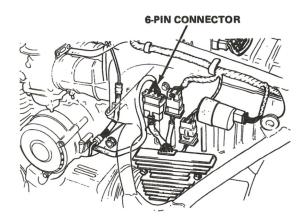
LOW-RPM HIGH-OUTPUT STATOR

RPM	Amperage Output
2500	2 amps
1700-1800	0 ± 1 amp
1500	_3 ± 1 amp
1000	_9 ± 1 amp

5. Test the stator and regulator/rectifier as follows:

NOTE: Use a negative ground ohmeter for all these tests.

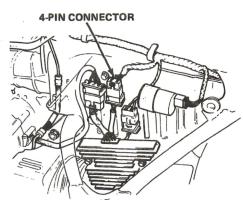
 Stator — Disconnect the 6-pin connector and measure the resistance between the yellow wires on the wire harness side: It should be 0.4 — 0.6 ohms. Now, measure the resistance between each yellow wire and ground: it should be infinite.



Now, measure the resistance between the black and white wires: it should be 4-6 ohms.

Then, measure the resistance between the black wire and ground: it should be infinite.

Regulator Rectifier — Disconnect the 4-pin and 6-pin connectors for the Regulator/ Rectifier.



With the ohmmeter's positive lead on the red/white wire and the negative lead on any yellow wire, measure the resistance: it should be infinite.

With the ohmmeter's positive lead on any yellow wire and the negative lead on the red/ white wire, measure the resistance: it should be 5-40 ohms.

With the ohmmeter's positive lead on the green wire and the negative lead on any yellow wire, measure the resistance: it should be 5-40 ohms.

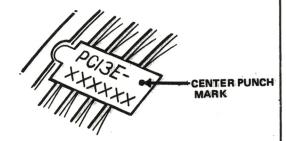
With the ohmmeter's positive lead on any yellow wire and the negative lead on the green wire, measure the resistance: it should be infinite.

- If the stator or regulator/rectifier fail to meet these specifications, replace them and retest.
- If these components test OK, go to step 6.

 With all components reconnected, start the engine. At the 4-pin regulator/rectifier connector, insert the positive probe of a voltmeter into the black wire (on the harness side) and connect the negative probe to ground.

Increase the engine speed to 2500 RPM and watch the voltmeter: voltage should stabilize at 14-15 volts.

- If the voltage is as specified, go to the warranty section of this bulletin.
- If the voltage is not as specified, replace the regulator/rectifier and retest.
- 7. Identify any motorcycle that you install a new stator in, by making a center punch mark on the engine number boss.



PARTS INFORMATION

(Replace only as necessary)

Stator

H/C 153707<u>5</u>

P/N 31120-ME5-015

Regulator/Rectifier

H/C 1328350

P/N 31600-ME5-003

Battery

H/C 1378256

P/N 31500-ME5-671

WARRANTY INFORMATION

The normal warranty of 12-months, unlimited mileage applies. Warranty repairs on models beyond this time period will require approval from your District Service Manager.

Fill in the appropriate warranty claim form as shown in the next column.

For stator replacement:

		JOB CODE :	HRS TENTHS
FAILED HONDA CODE / 5	37075	E6-3	0.5
DEFECT CODE 67	TREATMENT	1 or 2	

For battery replacement:

			JOB CODE	HRS TENTHS
FAILED HONDA CODE 1378256			C4-1	0.3
DEFECT CODE	67	TREATMENT	1	

For regulator/rectifier replacement:

		JOB CODE =	HRS TENTHS
FAILED HONDA CODE 1328350		C4-4	0.3
DEFECT CODE 67	TREATMENT	1 or 2	

	+
	with the same of t
	-
	7
•	
	_!

CB550SC #1
DECEMBER, 1982

1983 CB550SC REQUIRED SPECIAL TOOLS

Two NEW Special Tools are required to service and maintain the 1983 CB550SC. The other tools listed below are also needed for this model, but have been introduced as required tools for other models. If you don't already have these required tools, they can be ordered using normal ordering procedures. You must have all the required special tools or their approved equivalents in your dealership as per Article VI, Paragraph 5, of the Motorcycle Sales Agreement.

ENGINE TOOLS

INSPECT	-INSPECTION/ADJUSTMENT				
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY		
0479782	M937B-021-XXXXX	Carburetor Vacuum Gauge Kit	Carburetor synchronization.		
1230382	ST-AH-260-MC7	Vacuum Pump with Gauge	Fuel valve diaphragm inspection. A973X-041- XXXXX may also be used.		
0238923	07401-0010000	Carburetor Float Level Gauge	Float level inspection.		
0804948	07908-4220201	Carburetor Pilot Screw Wrench	Carburetor synchronization and pilot screw adjustment.		

CYLINDE	R HEAD/PISTON		
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
0688150	07757-0010000	Valve Spring Compressor	Valve removal/installation. Supersedes 07957-3290001, which can still be used. NOTE: Retainer ring should be temporarily removed to avoid damaging cylinder head.
1383009	07942-MA60000	Valve Guide Driver	Valve guide removal/installation.
0431494		Piston Ring Compressor (2 required)	Piston/cylinder installation.
0193334	07958-3000000	Piston Base (2 required)	Support pistons for cylinder installation.
1383058	07973-ME90000	Hydraulic Tappet Bleeder	Use to bleed air from the tappet high pressure

Valve Guide Reamer, 5.0 mm

1383066

07984-MA60000

TOOL NUMBER	DESCRIPTION	APPLICABILITY
07746-0010300	Attachment, 42 x 47 mm	Clutch outer needle bearing removal/installa-
	Pilot, 30 mm	tion. Use when unable to remove or install
	Driver	by hand.
07914-3230001	Snap-Ring Pliers — Master Cylinder	Clutch master cylinder disassembly/reassembly.
	TOOL NUMBER	TOOL NUMBER DESCRIPTION 07746-0010300 Attachment, 42 x 47 mm 07746-0040700 Pilot, 30 mm 07749-0010000 Driver 07914-3230001 Snap-Ring Pliers — Master

Valve guide I.D. sizing.

CALTERNATOR					
H/C	TOOL NUMBER	DESCRIPTION	ADDITION		
0060624	07933-2160000	Rotor Puller	APPLICABILITY Rotor removal.		
	notor removal.				

MST 5208 8212 1 OF 4

ENGINE TOOLS (CONTINUED)

H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
0753491	07746-0010200	Attachment, 37 x 40 mm	 Starter clutch shaft bearing installation. Use with 07746-0040400.
			 Output case driven bearing installation. Use with 07746-0040300.
0959817	07746-0010300	Attachment, 42 x 47 mm	Countershaft bearing installation.
0753483	07746-0010400	Attachment, 52 x 55 mm	 Output drive gear (countershaft) bearing holder and bearing removal/installation. Use with 07746- 0040700. Output driven gear bearing holder and bearing re- moval/installation.
0959833	07746-0020100	Driver	Starter clutch shaft bearing installation.
0959841	07746-0020400	Attachment, 20 mm I.D.	Starter crutch shart bearing installation.
0753459	07746-0030100	Driver	Mainshaft bearing installation onto shaft. Driver
0959858	07746-0030200	Attachment, 25 mm I.D.	07945-3710200 may be used.
0813113	07746-0030300	Attachment, 30 mm I.D.	Supports the inner bearing race when installing the output drive or driven gear into the bearing holder.
0959882	07746-0040300	Pilot, 15 mm	Use with 07746-0010200 to install the output case bearing.
0959890	07746-0040400	Pilot, 17 mm	Use with 07746-0010200 to install the starter clutch shaft bearing into cover.
0959916	07746-0040600	Pilot, 25 mm	Serves as the pressing point when installing the output drive/driven gears into the bearing holders.
1021252	07746-0040700	Pilot, 30 mm	Use with 07746-0010400 when installing the output drive gear into the bearing holder.
0933242	07749-0010000	Driver	Use with attachments and pilots.
1239227	07916-MB00000	Lock Nut Wrench, 30/64 mm	Output drive gear (countershaft) inner and outer bearing race lock nut removal and torquing.
1382977	07916-ME50000	Lock Nut Wrench, 34/44 mm	Output driven gear inner and outer bearing race lock nut removal and torquing.
1382985	07924-ME50000	Shaft Holder	 Hold output drive and driven gears to assist inner bearing races lock nut removal/torquing. Hold output driven gear to measure backlash.
0413112		Remover Handle	Use with bearing remover 07936-3710600.
0413120		Remover Weight	
0484295		Bearing Remover, 20 mm	Countershaft case bearing removal.
0312439	07945-3330300	Attachment	Output driven gear bearing removal from bearing holder.
0413252	07947-3710200	Driver	 Install the starter clutch shaft and cover into the crankcase. Output driven gear oil seal installation.
0413286	07949-3710000	Driver	 Use with press to remove bearing from the starter clutch shaft cover. Use with 07746-0010300 to install countershaft bearing into case.
1204239	07965-3710101	Ring Gear Disassembly/ Reassembly Tool	Use without center guide to support output drive gear bearing holder when removing the drive gear. Supersedes 07965-3710100, which can still be used

FINAL DR	FINAL DRIVE ————————————————————————————————————			
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY	
0753509	07746-0010100	Attachment, 32 x 35 mm	 Use with 07749-0010000 to remove ring gear from final drive case cover. Use with 07746-0040700 to serve as a center for gear puller to remove ring gear bearing. Pinion gear case bearing installation. Use with 07949-3710000. 	
0753491	07746-0010200	Attachment, 37 x 40 mm	Use with 07947-3710101 to install the pinion gear into the case far enough until the pinion retainer threads can engage with the case threads.	
0959817	07746-0010300	Attachment, 42 x 47 mm	O-ring guide installation.	
0753483	07746-0010400	Attachment, 52 x 55 mm	 Ring gear case bearing installation. Driveshaft damper oil seal guide and oil seal installation. 	

ENGINE TOOLS (CONTINUED)

1	-FINAL DR	IVE (CONTINUED)		
	H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
	0753459	07746-0030100	Driver	Pinion gear bearing installation. Driver 07945-
1	0959858	07746-0030200	Attachment, 25 mm I.D.	3710200 may also be used.
	1021252	07746-0040700	Pilot, 30 mm	Use with 07746-0010100 as a center for a gear puller.
	0933242	07749-0010000	Driver	Use with attachments.
	0941260	07910-4630100	Pinion Gear Retainer Wrench	Pinion gear retainer removal/torquing.
1EW	1432103	07924-ME40000	Pinion Holder	Hold pinion gear to assist pinion gear shaft nut re- moval/torquing.
1EW	1432111	07931-ME40000	Shaft Puller	Pinion gear removal from case. Used with pinion holder.
	0312413	07945-3330100	Attachment	Pinion gear retainer oil seal removal. Use with 07749-0010000.
	0312439	07945-3330300	Attachment	Ring gear case oil seal installation.
	1210988	07946-3710701	Attachment	Pinion gear retainer oil seal installation. Use with Driver 07749-0010000. Attachment 07946-3710700 may also be used.
-	1044312	*07947-3710101 (07947-4630300)	Fork Seal Driver	Use with 07746-0010100 to install pinion gear into case.
	0804757	07947-6340201	Attachment	Ring gear bearing installation. Use with old bear- ing. May also be used as support for ring gear dur- ing ring gear bearing removal.
	0413286	07949-3710000	Driver	Use with 07746-0010100 to install pinion gear case bearing.
	0688168	07959-3290001	Shock Absorber Compressor	Use with 07964-MB00100 and 07964-MB00200 to disassemble/assemble driveshaft damper.
	1239250	07964-MB00100	Attachment "A" (Plate)	Position in the adjustable base of 07959-3290001 to disassemble/assemble driveshaft damper.
	1239268	07964-MB00200	Attachment "B" (Collar)	Attaches to the clevis of 07959-3290001 to disassemble/assemble driveshaft damper.

CHASSIS TOOLS

-WHEEL/E	BRAKETOOL NUMBER	DESCRIPTION	APPLICABILITY
11/0	TOOLIVONIDEN	DECOMM MON	ATTEIOABIETT
0959817	07746-0010300	Attachment, 42 x 47 mm	Front and rear wheel bearing installation.
0959882	07746-0040300	Pilot, 15 mm	Use with 07746-0010300 for front wheel bearing installation.
0959890	07746-0040400	Pilot, 17 mm	Use with 07746-0010300 for rear wheel bearing installation.
0933242	07749-0010000	Driver	Use with attachment and pilots for wheel bearing installation.
0418236	07914-3230001	Snap-Ring Pliers	Master cylinder dis/assembly.

SUSPENS	-SUSPENSION/FRAME					
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY			
0753509	07746-0010100	Attachment, 32 x 35 mm	Swingarm bearing outer races installation. Use with 07749-0010000.			
0933242	07749-0010000	Driver	Use with 07746-0010100.			
1382951	07908-ME90000	Swingarm Lock Nut Wrench	Swingarm lock nut removal/torquing.			
0647651	07916-3710100	Steering Stem Socket	Steering stem bearing adjustment nut removal/adjustment.			
0413112	07936-3710100	Remover Handle	Use with 07936-3710500 to remove swingarm			
0413120	07936-3710200	Remover Weight	bearing outer races.			

^{*} This tool is substituted for the tool in parenthesis. The tool in parenthesis is listed in the shop manual but is unavailable from American Honda Motor Co., Inc.

CHASSIS TOOLS (CONTINUED)

-SUSPENSION/FRAME			
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
0413153	*07936-3710500 (07936-4150000)	Pivot Nut Remover	Swingarm bearing outer races removal.
0413237	07946-3710400	Race Remover/Installer	Top and bottom steering races removal/installation.
1210970	*07946-3710601 (07946-MB00000)	Steering Stem Driver	Use with 07964-MB00200 to install bottom cone race onto steering stem. Supersedes 07946-3710600, which can still be used.
1044312	07947-3710101	Fork Seal Driver	Fork seal installation.
0688168	07959-3290001	Shock Absorber Compressor	Rear shock dis/assembly. NOTE: The adjustable base supplied with this compressor must be replaced with base, 07959-MB10000, so that it will fit the larger shock.
1383033	07959-MB10000	Shock Absorber Compressor Attachment (Base)	Use with 07959-3290001.
1239268	07964-MB00200	Attachment "B" (Collar)	Use with 07946-3710601 to install the bottom cone race onto the steering stem.

^{*} This tool is substituted for the tool in parenthesis. The tool in parenthesis is listed in the shop manual but is unavailable from American Honda Motor Co., Inc.

AMERICAN HONDA MOTOR CO., INC.

SERVICE DEPARTMENT

CB650SC #1 OCTOBER, 1982

1983 CB650SC REQUIRED SPECIAL TOOLS

Four NEW Special Tools are required to service and maintain the 1983 CB650SC. The other tools listed below are also needed for this model, but have been introduced as required tools for other models. If you don't already have these required tools, they can be ordered using normal ordering procedures. You must have all the required special tools or their approved equivalents in your dealership as per Article VI, Paragraph 5, of the Motorcycle Sales Agreement.

ENGINE TOOLS

[INSPECT	INSPECTION/ADJUSTMENT				
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY		
0479782	M937B-021-XXXXX	Carburetor Vacuum Gauge Kit	Carburetor synchronization.		
1230382	ST-AH-260-MC7	Vacuum Pump with Gauge	Fuel valve diaphragm inspection. A973X-041-XXXXX may also be used.		
0238923	07401-0010000	Carburetor Float Level Gauge	Float level inspection.		
0804948	07908-4220201	Carburetor Pilot Screw Wrench	Carburetor synchronization and pilot screw adjustment.		

1				
	H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
*	0688150	07757-0010000	Valve Spring Compressor	Valve removal/installation. Supersedes 07957- 3290001, which can still be used. NOTE: Re- tainer ring should be temporarily removed to avoid damaging cylinder head.
NEW	1383009	07942-MA60000	Valve Guide Driver	Valve guide removal/installation.
	0431494	07954-3740000	Piston Ring Compressor (2 required)	Piston/cylinder installation.
	0193334	07958-3000000	Piston Base (2 required)	Support pistons for cylinder installation.
	1383058	07973-ME90000	Hydraulic Tappet Bleeder	Use to bleed air from the tappet high pressure chamber before installing.
NEW	1383066	07984-MA60000	Valve Guide Reamer, 5.0 mm	Valve guide I.D. sizing.

LCTOLCH .			
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
0959817	07746-0010300	Attachment, 42 x 47 mm	Clutch outer needle bearing removal/installa-
1021252	07746-0040700	Pilot, 30 mm	tion. Use when unable to remove or install
0933242	07749-0010000	Driver	by hand.
0418236	07914-3230001	Snap-Ring Pliers — Master Cylinder	Clutch master cylinder disassembly/reassembly.

1	CALTERNATOR					
	H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY		
	0060624	07933-2160000	Rotor Puller	Rotor removal.		

MST 4902 8209

1 OF 4

ROUTING	Copy 1:	GENERAL MANAGER	☐ PARTS MANAGER	☐ TOOL CATALOG BINDER
	Copy 2:	☐ SERVICE MANAGER	☐ SERVICE TECHNICIANS	☐ SERVICE MANUAL BINDER

ENGINE TOOLS (CONTINUED)

H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
0753491	07746-0010200	Attachment, 37 x 40 mm	 Starter clutch shaft bearing installation. Use with 07746-0040400.
-			 Output case driven bearing installation. Use with 07746-0040300.
0959817	07746-0010300	Attachment, 42 x 47 mm	Countershaft bearing installation.
0753483	07746-0010400	Attachment, 52 x 55 mm	 Output drive gear (countershaft) bearing holder and bearing removal/installation. Use with 07746 0040700. Output driven gear bearing holder and bearing removal/installation.
0959833	07746-0020100	Driver	
0959841		Attachment, 20 mm I.D.	Starter clutch shaft bearing installation.
0753459		Driver	Mainshaft bearing installation onto shaft. Driver
0959858		Attachment, 25 mm I.D.	07945-3710200 may be used.
0813113		Attachment, 30 mm I.D.	Supports the inner bearing race when installing
0010110	07740-0030300		the output drive or driven gear into the bearing holder.
0959882	07746-0040300	Pilot, 15 mm	Use with 07746-0010200 to install the output case bearing.
0959890		Pilot, 17 mm	Use with 07746-0010200 to install the starter clutch shaft bearing into cover.
0959916		Pilot, 25 mm	Serves as the pressing point when installing the output drive/driven gears into the bearing holders.
1021252		Pilot, 30 mm	Use with 07746-0010400 when installing the output drive gear into the bearing holder.
0933242		Driver	Use with attachments and pilots.
1239227		Lock Nut Wrench 30/64 mm	Output drive gear (countershaft) inner and outer bearing race lock nut removal and torquing.
1382977	07916-ME50000	Lock Nut Wrench 34/44 mm	Output driven gear inner and outer bearing race lock nut removal and torquing.
1382985	07924-ME50000	Shaft Holder	 Hold output drive and driven gears to assist inner bearing races lock nut removal/torquing. Hold output driven gear to measure backlash.
0413112	07936-3710100	Remover Handle	
0413120	07936-3710200	Remover Weight	Use with bearing remover 07936-3710600.
0484295		Bearing Remover, 20 mm	Countershaft case bearing removal.
0312439	07945-3330300	Attachment	Output driven gear bearing removal from bearing holder.
0413252	07947-3710200	Driver	 Install the starter clutch shaft and cover into the crankcase. Output driven gear oil seal installation.
0413286		Driver	 Use with press to remove bearing from the starter clutch shaft cover. Use with 07746-0010300 to install countershaft bearing into case.
0413328	07965-3710100	Ring Gear Disassembly/ Reassembly Tool	Use without center guide to support output drive gear bearing holder when removing the drive gear.

FINAL DRIVE————————————————————————————————————			
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
0753509	07746-0010100	Attachment, 32 x 35 mm	 Use with 07749-0010000 to remove ring gear from final drive case cover. Use with 07746-0040700 to serve as a center for gear puller to remove ring gear bearing. Pinion gear case bearing installation. Use with 07949-3710000.
0753491	07746-0010200	Attachment, 37 x 40 mm	Use with 07947-3710101 to install the pinion gear into the case far enough until the pinion retainer threads can engage with the case threads.
0959817	07746-0010300	Attachment, 42 x 47 mm	O-ring guide installation.
0753483	07746-0010400	Attachment, 52 x 55 mm	 Ring gear case bearing installation. Driveshaft damper oil seal guide and oil seal installation.

ENGINE TOOLS (CONTINUED)

H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY
0753459	07746-0030100	Driver	Pinion gear bearing installation. Driver 07945-
0959858	07746-0030200	Attachment, 25 mm I.D.	3710200 may also be used.
1021252	07746-0040700	Pilot, 30 mm	Use with 07746-0010100 as a center for a gear puller.
0933242		Driver	Use with attachments.
1239227	07916-MB00000	Lock Nut Wrench, 30 x 64 mm	Pinion gear retainer removal/torquing.
1382993	07926-ME90000	Pinion Holder	Hold pinion gear to assist pinion gear shaft nut re- moval/torquing.
137517	07935-MB00000	Pinion Puller	Pinion gear removal from case. NOTE: Pinion Puller 07931-4630200 may be used if updated with Attachment Kit 07931-MB00000. Attachment Kit 07931-MB00000 was part of the VF750 automatic special tool release.
0312413	07945-3330100	Attachment	Pinion gear retainer oil seal removal. Use with 07749-0010000.
0312439	07945-3330300	Attachment	 Pinion gear retainer oil seal installation. Use with 07749-0010000. Ring gear case oil seal installation.
1044312	*07947-3710101 (07947-4630300)	Fork Seal Driver	Use with 07746-0010100 to install pinion gear into case.
0804757	07947-6340201	Attachment	Ring gear bearing installation. Use with old bearing. May also be used as support for ring gear during ring gear bearing removal.
0413286	07949-3710000	Driver	Use with 07746-0010100 to install pinion gear case bearing.
0688168	07959-3290001	Shock Absorber Compressor	Use with 07964-MB00100 and 07964-MB00200 to disassemble / assemble driveshaft damper.
1239250	07964-MB00100	Attachment "A" (Plate)	Position in the adjustable base of 07959-3290001 to disassemble/assemble driveshaft damper.
1239268	07964-MB00200	Attachment "B" (Collar)	Attaches to the clevis of 07959-3290001 to disassemble/assemble driveshaft damper.
0941286	07973-4630200	O-Ring Guide	Protects pinion gear retainer O-ring during installation.

CHASSIS TOOLS

1	CWHEEL/BRAKE					
	H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY		
	0959817	07746-0010300	Attachment, 42 x 47 mm	Front and rear wheel bearing installation.		
	0959882	07746-0040300	Pilot, 15 mm	Use with 07746-0010300 for front wheel bearing installation.		
97	0959890	07746-0040400	Pilot, 17 mm	Use with 07746-0010300 for rear wheel bearing installation.		
	0933242	07749-0010000	Driver	Use with attachment and pilots for wheel bearing installation.		
	0418236	07914-3230001	Snap-Ring Pliers	Master cylinder dis/assembly.		

t	† SUSPENSION/FRAME					
3	H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY		
	0753509	07746-0010100	Attachment, 32 x 35 mm	Swingarm bearing outer races installation. Use with 07749-0010000.		
	0933242	07749-0010000	Driver	Use with 07746-0010100.		
	1382951	07908-ME90000	Swingarm Lock Nut Wrench	Swingarm lock nut removal/torquing.		
	0647651	07916-3710100	Steering Stem Socket	Steering stem bearing adjustment nut removal/adjustment.		
	0413112	07936-3710100	Remover Handle	Use with 07936-3710500 to remove swingarm		
	0413120	07936-3710200	Remover Weight	bearing outer races.		

^{*} This tool is substituted for the tool in parenthesis. The tool in parenthesis is listed in the shop manual but is unavailable from American Honda Motor Co., Inc.

CHASSIS TOOLS (CONTINUED)

-SUSPENSION/FRAME				
H/C	TOOL NUMBER	DESCRIPTION	APPLICABILITY	
0413153	*07936-3710500 (07936-4150000)	Pivot Nut Remover	Swingarm bearing outer races removal.	
0413237	07946-3710400	Race Remover/Installer	Top and bottom steering races removal/installation.	
1210970	*07946-3710601 (07946-MB00000)	Steering Stem Driver	Use with 07964-MB00200 to install bottom cone race onto steering stem. Supersedes 07946-3710600, which can still be used.	
0960005	07947-4630100	Fork Seal Driver	Fork seal installation.	
0688168	07959-3290001	Shock Absorber Compressor	Rear shock dis/assembly. NOTE: The adjustable base supplied with this compressor must be replaced with base, 07959-MB10000, so that it will fit the larger shock.	
1383033	07959-MB10000	Shock Absorber Compressor Attachment (Base)	Use with 07959-3290001.	
1239268	07964-MB00200	Attachment "B" (Collar)	Use with 07946-3710601 to install the bottom cone race onto the steering stem.	

^{*} This tool is substituted for the tool in parenthesis. The tool in parenthesis is listed in the shop manual but is unavailable from American Honda Motor Co., Inc.

AMERICAN HONDA MOTOR CO., INC.

SERVICE DEPARTMENT